# Service Manual

# ViewSonic VA912/b-3

## Model No. VS10931

## 19” Color TFT LCD Display

( VA912/b- 3_SM Rev. 1a Oct. 2005)

ViewSonic 381 Brea Canyon Road, Walnut, California 91789 USA - (800) 888-8583

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# Revision History

| Revision | SM Editing Date | ECR Number | Description of Changes | Editor |
|---|---|---|---|---|
| 1a | 10/12/05 | | Initial Release | G. Han |
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# 1. Precautions and Safety Notices

**1. Appropriate Operation**

(1) Turn off the product before cleaning.

(2) Use only a dry soft cloth when cleaning the LCD panel surface.

(3) Use a soft cloth soaked with mild detergent to clean the display housing.

(4) Use only a high quality, safety approved AC/DC power cord.

(5) Disconnect the power plug from the AC outlet if the product will not be used for a long period of time.

(6) If smoke, abnormal noise, or strange odor is present, immediately switch the LCD display off.

(7) Do not touch the LCD panel surface with sharp or hard objects.

(8) Do not place heavy objects on the LCD display, video cable, or power cord.

(9) Do not use abrasive cleaners, waxes or solvents for your cleaning.

(10) Do not operate the product under the following conditions:

- Extremely hot, cold or humid environment.
- Areas containing excessive dust and dirt.
- Near any appliance generating a strong magnetic field.
- In direct sunlight.

**2. Caution**

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

**3. Safety Check**

Care should be taken while servicing this LCD display. Because of the high voltage used in the inverter circuit, the voltage is exposed in such areas as the associated transformer circuits.

**4. LCD Module Handling Precautions**

**4.1 Handling Precautions**

(1) Since front polarizer is easily damaged, pay attention not to scratch it.

(2) Be sure to turn off power supply when connecting or disconnecting input connector.

(3) Wipe off water drops immediately. Long contact with water may cause discoloration or spots.

(4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.

(5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.

(6) Since CMOS LSI is used in this module, take care of static electricity and ensure human earth when handling.

(7) Do not open or modify the Module Assembly.

(8) Do not press the reflector sheet at the back of the module in any direction.

(9) In the event that a Module must be put back into the packing container slot after it was taken out of the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CFL Reflector edge softly. Otherwise the TFT Module may be damaged.

(10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate or tilt the Interface Connector of the TFT Module.

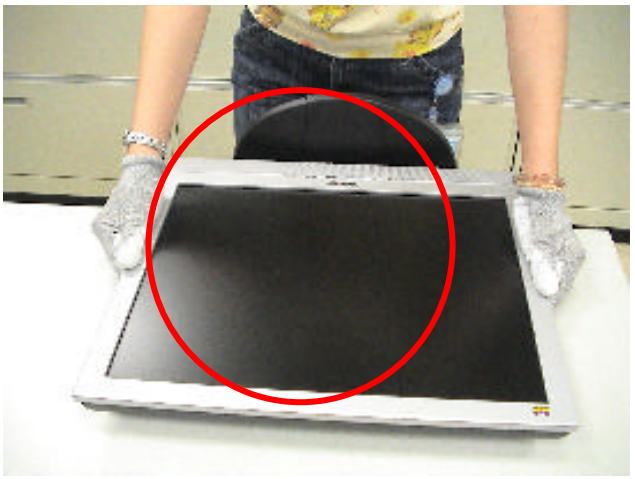
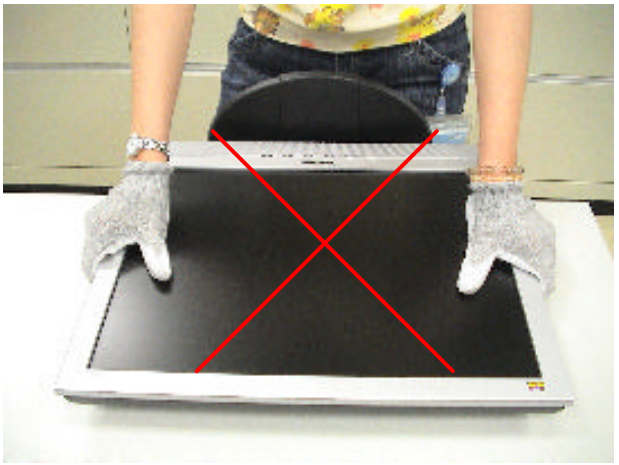
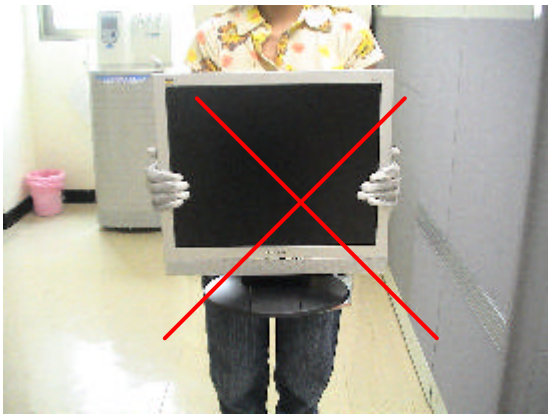
(11) After installation of the TFT Module into an enclosure (LCD monitor housing, for example), do not twist or

bend the TFT Module even momentarily. When designing the enclosure, it should be taken into consideration that no bending/twisting forces may be applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.

(12) The cold cathode fluorescent lamp in the LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.

(13) The LCD module contains a small amount of materials having no flammability grade. The LCD module should be supplied with power that complies with the requirements of Limited Power Source (IEC60950 or UL1950), or an exemption should be applied for.

(14) The LCD module is designed so that the CCFL in it is supplied by a Limited Current Circuit (IEC60950 or UL1950). Do not connect the CCFL to a Hazardous Voltage Circuit.

| Correct methods : | Incorrect Methods : |
|---|---|
| Only touch the metal-frame of the panel or the front cover of the monitor.<br>Do not touch the surface of the polarizer . | Surface of the panel is pressed by fingers & this may cause “ MURA “ |
|  |  |
| |  |
| Take out the monitor with cushion | Take out the monitor by grasping the LCD panel.<br>That may cause “ MURA“. |
| | |

| Correct Methods : | Incorrect Methods : |
| --- | --- |
| Place the monitor on a clean & soft foam pad . | Place the monitor on foreign objects .<br>That could scratch the surface of panel |
| | |

## 2. Specification

### 2-1General Specifications

| | |
|---|---|
| Test Resolution & Frequency | 1280x1024 @ 60Hz |
| Test Image Size | Full Size |
| Contrast and Brightness Controls | Factory Default:<br>Contrast = 70%, Brightness = 100% |

### 2.2 VIDEO INTERFACE

| | |
|---|---|
| Analog Input Connector | DB-15 (Analog), refer the appendix A |
| Digital Input Connector | DVI-D 24pin, refer the appendix B |
| Default Input Connector | Defaults to the first detected input |
| Video Cable Strain Relief | Equal to twice the weight of the monitor for five minutes |
| Video Cable Connector DB-15 Pin out | Compliant DDC 2B |
| Video Signals | 1. Video RGB (Analog)<br>2. DVI (Digital)<br>Separate |
| Video Impedance | 75 Ohms (Analog) |
| Maximum PC Video Signal | 950 mV with no damage to monitor |
| Maximum Mac Video Signal | 1250 mV with no damage to monitor |
| Sync Signals | TTL |
| DDC 2B | Compliant with Revision 1.3 |
| Sync Compatibility | Separate Sync |
| Video Compatibility | Shall be compatible with all PC type computers, Macintosh computers, and after market video cards |
| Resolution Compatibility | 640 x 350*, 640 x 480, 720 x 400* (640 x 400*), 800 x 600, 832 x 624, 1024 x 768, 1152 x 870, 1280 x 720, 1280 x 960, 1280 x 1024<br><br>* The image vertical size might not be full screen.<br>But the image vertical position should be at the center. |
| Exclusions | Not compatible with interlaced video |

## 2-3 POWER SUPPLY

| | |
|---|---|
| Power Supply (Adapter) | Part Number: 27-D003115 |
| Input Voltage Range | 100 TO 240 VAC |
| Input Frequency Range | 50 TO 60 HERTZ |
| Short Circuit Protection | Output can be shorted without damage |
| Over Current Protection | 3.3~4.5 A typical at 5 VDC |
| Leakage Current | 3.5 mA (Max) at 254VAC / 60Hz |
| EFFICIENCY | 80 % typical at 115 VAC Full Load |
| Fuse | Internal and not user replaceable |
| Power Dissipation | 58 (Max) Watt |
| Max Input AC Current | 1.8 A rms @ 100 VAC, |
| INRUSH CURRENT (COLD START) | 120A(max) @ 240VAC, 50Hz |
| Power Supply Cold Start | Shall start and function properly when under full load, with all combinations of input voltage, input frequency, and operating temperature |
| Power Supply Transient Immunity | Shall be able to withstand an EN61000-4-4 ±2KV transient test with no damage |
| Power Supply Line Surge Immunity | Shall be able to withstand ±2KV (L-L) and ±2.3KV (L-PE) with no damage |
| Power Supply Missing Cycle Immunity | Shall be able to function properly, without reset or visible screen artifacts, when ½ cycle of AC power is randomly missing at nominal input |
| Power Supply Acoustics | The power supply shall not produce audible noise that would be detectable by the user. Audible shall defined to be in compliance with ISO 7779 (DIN EN27779:1991) Noise measurements of machines acoustics. Power Switch noise shall not be considered |
| US Type Power Cable | Separate 3-prong NEMA 5-15P type plug. Length = 1.8m. Connects to display.<br>Color = Black |
| European Type Power Cable | Schuko CEE7-7 type plug.<br>Length = 1.8m, Connects to display.<br>Color = Black |
| CCC Type Power Cable | Separate 3-prong type plug.<br>Length = 1.8m. Connects to display.<br>Color = Black |
| Power Saving Operation(Method) | VESA DPMS Signaling |
| Power Consumption | ON Mode < 58 W (max) |

| | |
|---|---|
| | ACTIVE OFF < 2 W |
| Recovery Time | ON MODE = N/A, ACTIVE OFF < 3 SEC |

## 2-4 ELECTRICAL REQUIREMENT

**Horizontal / Vertical Frequency**

| | |
|---|---|
| Horizontal Frequency | 30 – 82 KHZ |
| Vertical Refresh Rate | 50 – 85* HZ. |
| Maximum Pixel Clock | 135 MHz (EDID file is 140MHz) |
| Sync Polarity | Independent of sync polarity. |

**Timing Table**

| Item | Timing | Analog | Digital |
|---|---|---|---|
| 1 | 640 x 350 @ 70Hz, 31.5kHz | Yes | Yes |
| 2 | 640 x 400 @ 60Hz, 31.5kHz | Yes* | Yes |
| 3 | 640 x 400 @ 70Hz, 31.5kHz | Yes | Yes |
| 4 | 640 x 480 @ 60Hz, 31.5kHz | Yes | Yes |
| 5 | 640 x 480 @ 67Hz, 35.0kHz | Yes | Yes |
| 6 | 640 x 480 @ 72Hz, 37.9kHz | Yes | Yes |
| 7 | 640 x 480 @ 75Hz, 37.5kHz | Yes | Yes |
| 8 | 640 x 480 @ 85Hz, 43.27kHz | Yes | Yes |
| 9 | 720 x 400 @ 70Hz, 31.5kHz | Yes | Yes |
| 10 | 800 x 600 @ 56Hz, 35.1kHz | Yes | Yes |
| 11 | 800 x 600 @ 60Hz, 37.9kHz | Yes | Yes |
| 12 | 800 x 600 @ 75Hz, 46.9kHz | Yes | Yes |
| 13 | 800 x 600 @ 72Hz, 48.1kHz | Yes | Yes |
| 14 | 800 x 600 @ 85Hz, 53.7kHz | Yes | Yes |
| 15 | 832 x 624 @ 75Hz, 49.7kHz | Yes | Yes |
| 16 | 1024 x 768 @ 60Hz, 48.4kHz | Yes | Yes |
| 17 | 1024 x 768 @ 70Hz, 56.5kHz | Yes | Yes |
| 18 | 1024 x 768 @ 72Hz, 58.1kHz | Yes | Yes |
| 19 | 1024 x 768 @ 75Hz, 60.0kHz | Yes | Yes |
| 20 | 1024 x 768 @ 85Hz, 68.67kHz | Yes | Yes |
| 21 | 1152 x 870 @ 75Hz, 68.7kHz | Yes | Yes |
| 22 | 1280 x 1024 @ 60Hz, 63.4kHz | Yes | Yes |
| 23 | 1280 x 1024 @ 75Hz, 79.97kHz | Yes | No |
| 24 | 1280x 720 @ 60Hz, 45kHz (HDTV) | Yes | Yes |
| Note 1:When Vertical frequency at 85Hz or resolution, the vertical image size might not be full screen. But the | | | |

| |
|---|
| vertical image position should be at the center.<br>Note2: *: The vertical image size might not be full screen. |

## 2-5 AUDIO INTERFACE (SPEAKER SPECIFICATION)

| | |
|---|---|
| Line input connection | 3.5 mm stereo jack |
| Line input signal | 1.0Vrms@1kHz |
| Line input impedance | 10k ohm |
| Maximum power output (Electric) | 2W |
| Signal to Noise Ratio | 72db |
| Frequency response | $F_0$ -20kHz ($F_0$: Lowest resonant freq.) |
| Distortion | <8% THD @1kHz |
| Vibration | There should be no audible vibration with volume at 100%. (Input signal within 1 Vrms) |
| Screen image | There should be no affect on the screen image stability under any conditions |
| Connector PC99 requirement Audio in | Lime Green pantone # 577C |
| Cable type / length | 3.5mm stereo cable / 1.8m length |
| Audio DPMS | Note: There is no guarantee <1 W power consumption in Active Off mode, when the Audio Cable is connected |

## 2-6 TFT LCD PANEL

**Panel Source Identify**

(1) ID label - The panel code "B" for CMO panel should be shown on the lower right side of ID label. (See Figure 2)

(2) UPC label - The panel code "B" for CMO panel should be shown on the lower right side of UPC label. (See Figure 3)

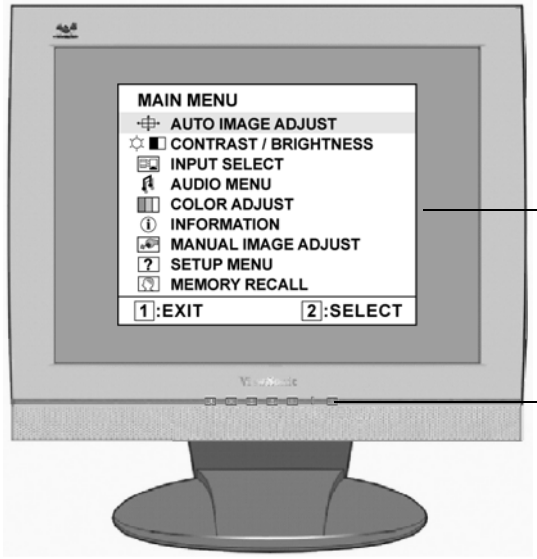
**Panel Characteristics:**

| | | |
|---|---|---|
| Model number | A190E3 | |
| Type | TN type with RSDS interface | |
| Active Size | 376.32 (H) x 301.056 (V) | |
| Pixel Arrangement | RGB Vertical Stripe | |
| Pixel Pitch | 0.294 mm | |
| GLASS TREATMENT | Anti Glare (Hard coating 3H) | |
| # OF BACKLIGHTS | 4 CCFL (L type); Edge Light BLU | |
| BACKLIGHT LIFE | 50,000 Hours (min) | |
| Luminance (Center) –<br>Condition:<br>CT = 6500K, Contrast = Max, Brightness = Max | 280 cd/m2 (Typ after 15 minute warm up)<br>180 cd/m2 (Min after 15 minute warm up) | |
| Brightness Uniformity (13 Points) | U = 76% (typ), 67% (Min).<br>U = Min Luminance in 13 points / Max Luminance in 13 points | |
| Contrast Ratio | 450 (typ), 250 (min) | |
| Color Depth | 16 million colors (6 bit + 2 bit FRC) | |
| Viewing Angle (Horizontal) | @ CR>10<br>Typical: 150<br>Minimum: 130 | @ CR>5<br>Typical: TBD<br>Minimum: TBD |
| VIEWING ANGLE (VERTICAL) | @ CR>10<br>Typical: 130<br>Minimum: 110 | @ CR>5<br>Typical: TBD<br>Minimum: TBD |
| Response Time<br>10%-90% @ Ta=25°C | 8ms (Tr= 2 ms, Tf = 6 ms) (typ)<br>18 ms (Tr= 7 ms, Tf = 11 ms) (max) | |
| Panel Defects | Please see Panel Quality Specifications. | |

### 3. Front Panel Function Control Description

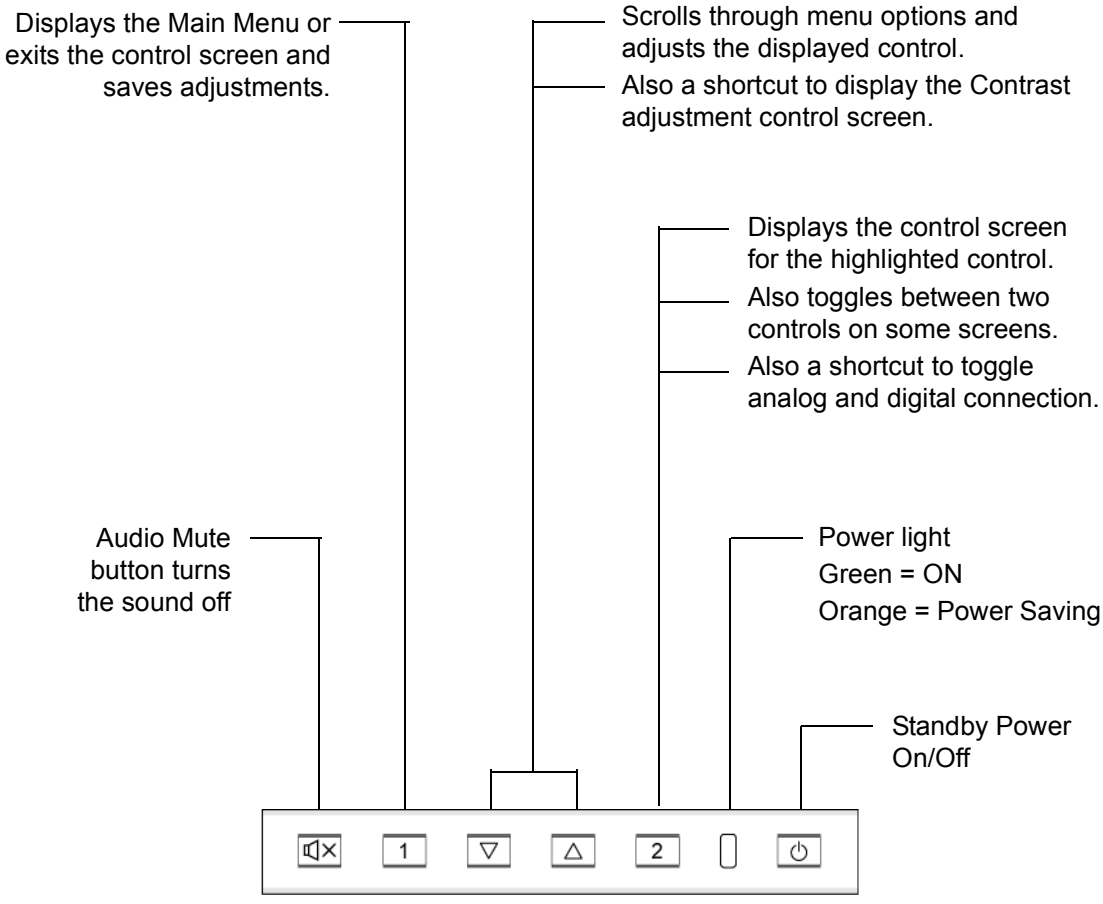
# Adjusting the Screen Image

Use the buttons on the front control panel to display and adjust the OSD controls which display on the screen. The OSD controls are explained at the top of the next page and are defined in "Main Menu Controls" on page 10.



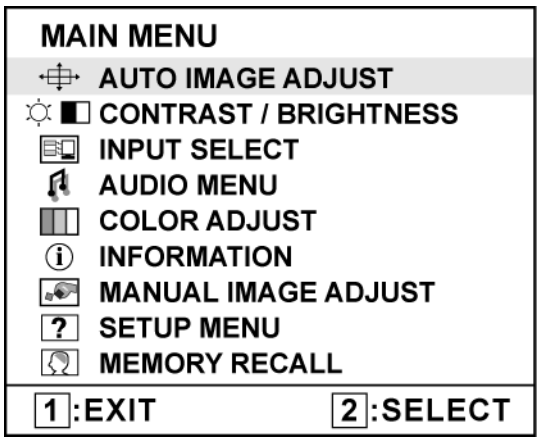

**Main Menu**
with OSD controls

**Front Control Panel**
shown below in detail


Displays the Main Menu or exits the control screen and saves adjustments.
Scrolls through menu options and adjusts the displayed control.
Also a shortcut to display the Contrast adjustment control screen.
Displays the control screen for the highlighted control.
Also toggles between two controls on some screens.
Also a shortcut to toggle analog and digital connection.
Audio Mute button turns the sound off
Power light
Green = ON
Orange = Power Saving
Standby Power On/Off
1
2

### Do the following to adjust the display setting:

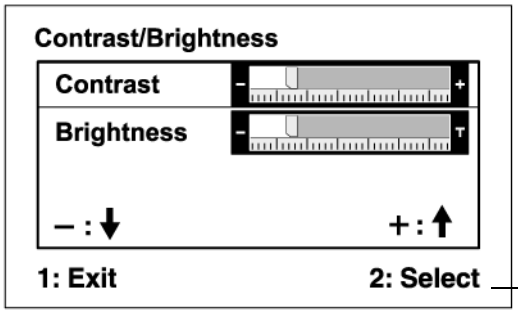
**1.** To display the Main Menu, press button [1].




**NOTE:** All OSD menus and adjustment screens disappear automatically after about 15 seconds. This is adjustable through the OSD timeout setting in the setup menu.

**2.** To select a control to adjust, press▲or▼to scroll up or down in the Main Menu.

**3.** After the desired control is selected, press button [2]. A control screen like the one shown below appears.




The command line at the bottom of the control screen tells what to do next from this screen. You can toggle between control screens, adjust the selected option, or exit the screen.

**4.** To adjust the setting, press the up ▲ or down ▼ buttons.

**5.** To save the adjustments and exit the menu, press button [1] *twice*.

### The following tips may help you optimize your display:

- Adjust the computer's graphics card so that it outputs a 1280 x 1024 @ 60Hz video signal to the LCD display. (Look for instructions on "changing the refresh rate" in the graphics card's user guide.)
- If necessary, make small adjustments using H. POSITION and V. POSITION until the screen image is completely visible. (The black border around the edge of the screen should barely touch the illuminated "active area" of the LCD display.)

# Main Menu Controls

Adjust the menu items shown below by using the up ▲ and down ▼ buttons.

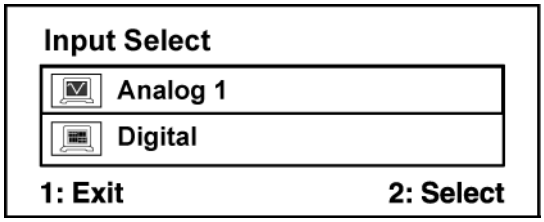
| Control | Explanation |
|---|---|

**Auto Image Adjust** sizes and centers the screen image automatically.

**Contrast** adjusts the difference between the image background (black level) and the foreground (white level).

**Brightness** adjusts background black level of the screen image.

**Input Select** toggles between inputs if you have more than one computer connected to the VA912/VA912b.

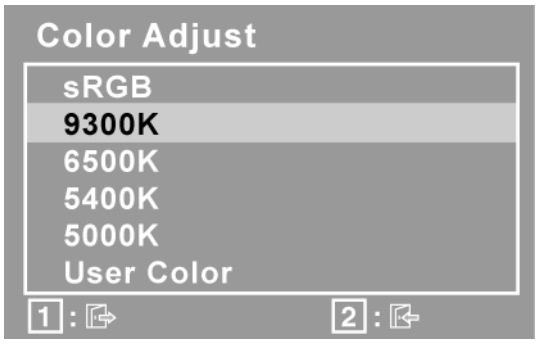



**Audio Adjust**

**Volume** increases the volume, decreases the volume, and mutes the audio.

**Mute** temporarily silences audio output.

**Color Adjust** provides several color adjustment modes, including preset color temperatures and a User Color mode which allows independent adjustment of red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500 Kelvin).




**9300K-**Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).

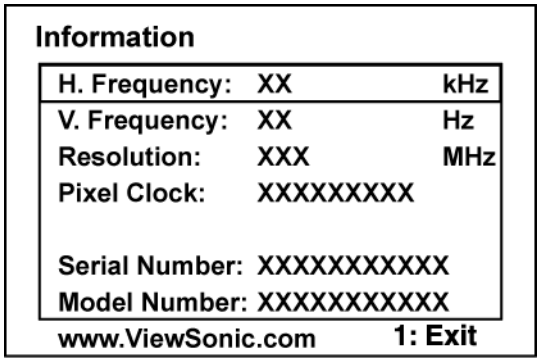
**6500K-**Adds red to the screen image for warmer white and richer red.

**5400K-**Adds green to the screen image for a darker color.

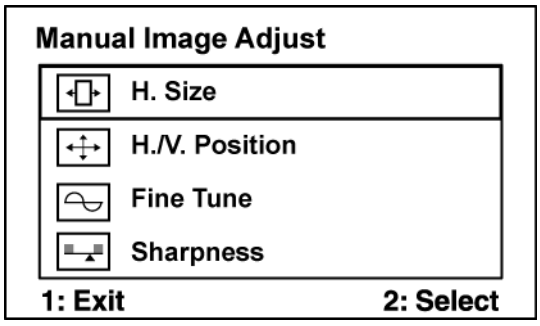
**5000K-**Adds blue and green to the screen image for a darker color.

**User Color** Individual adjustments for red (R), green (G), and blue (B).
**1.** To select color (R, G or B) press button [2].
**2.** To adjust selected color, press▲and▼.
**Important:** If you select RECALL from the Main Menu when the product is set to a Preset Timing Mode, colors return to the 6500K factory preset.

**Information** displays the timing mode (video signal input) coming from the graphics card in the computer, the LCD model number, the serial number, and the ViewSonic® website URL. See your graphics card's user guide for instructions on changing the resolution and refresh rate (vertical frequency).
**NOTE:** VESA 1280 x 1024 @ 60Hz (recommended) means that the resolution is 1280 x 1024 and the refresh rate is 60 Hertz.

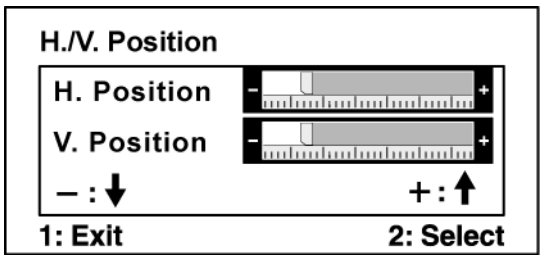



**Manual Image Adjust Sub-menu**




**H. Size (Horizontal Size)** adjusts the width of the screen image.

**H./V. Position (Horizontal/Vertical Position)** moves the screen image left or right and up or down.



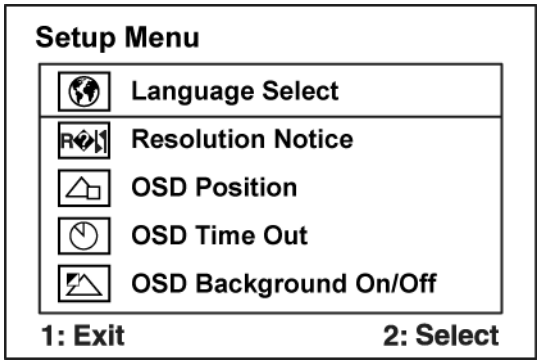
| Control | Explanation |
|---|---|

**Fine Tune** sharpens the focus by aligning text and/or graphics with pixel boundaries.

**NOTE:** Try Auto Image Adjust first.

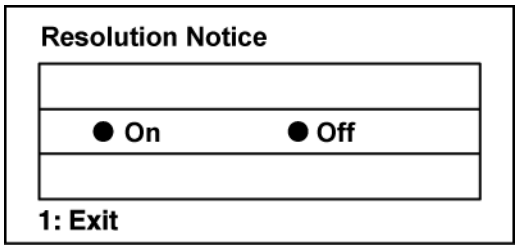
**Sharpness** adjusts the clarity and focus of the screen image.

**Setup Menu** displays the menu shown below:

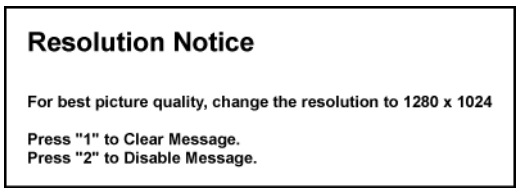



**Language Select** allows the user to choose the language used in the menus and control screens.

**Resolution Notice** allows the user to enable or disable this notice.




If you enable the Resolution Notice shown above and your computer is set at a resolution other than 1280 x 1024, the following screen appears.


Resolution Notice
For best picture quality, change the resolution to 1280 x 1024
Press "1" to Clear Message.
Press "2" to Disable Message.

**OSD Position** allows the user to move the OSD menus and control screens.

**OSD Timeout** sets the length of time the OSD screen is displayed. For example, with a “30 second” setting, if a control is not pushed within 30 seconds, the display screen disappears.

| Control | Explanation |
|---|---|
| | **OSD Background** allows the user to turn the OSD background On or Off. |
| | **Memory Recall** returns the adjustments back to factory settings if the display is operating in a factory Preset Timing Mode listed in the Specifications of this manual. |

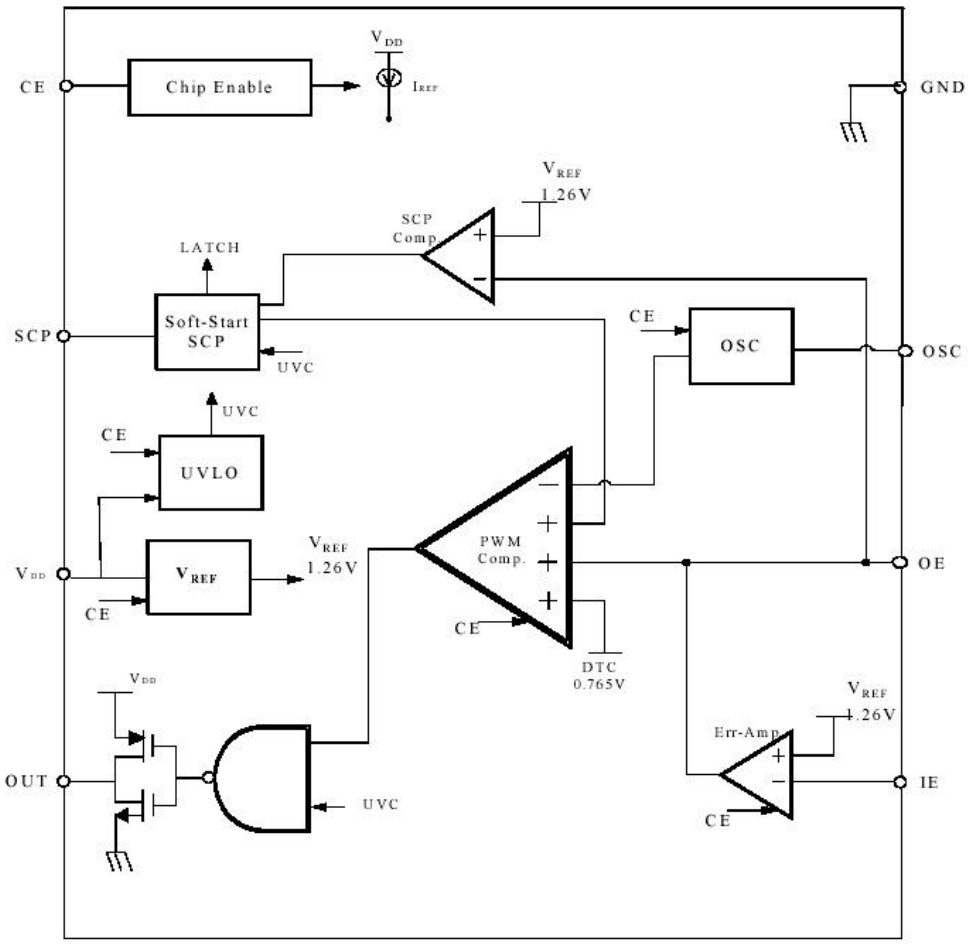
## 4. Circuit Description

### Circuit Description

1. Power supply (DC/DC Converter)

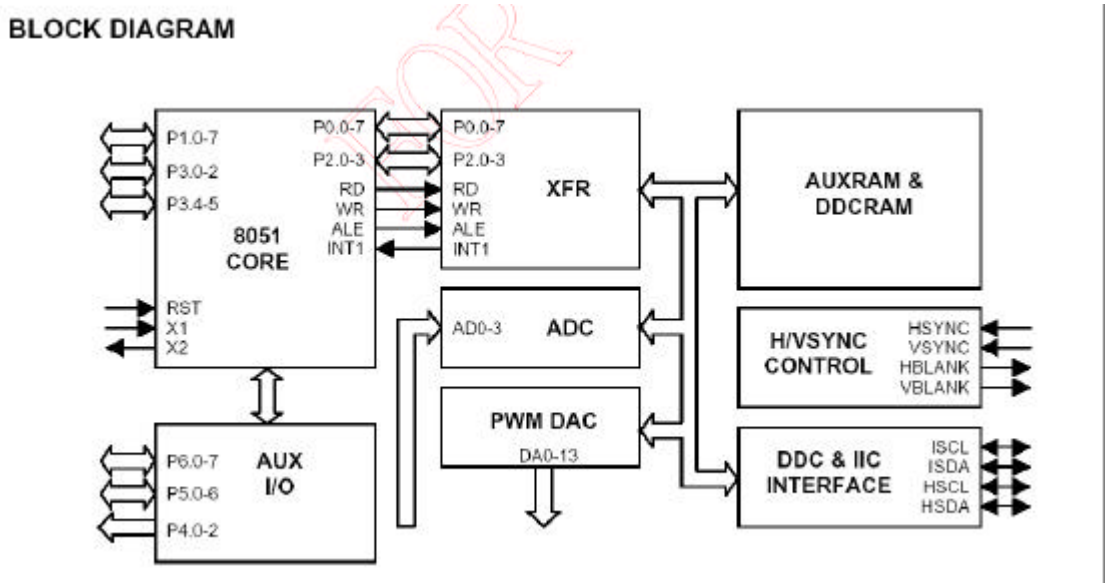
The AAT1109 is a one-channel step-up PWM controller incorporating a soft-start and a short circuit protection (SCP) function. This device consists of an on-chip voltage reference, error amplifier, pulse width modulation controller, under-voltage lockout protection, soft-start, and
short circuit protection circuits.

**BLOCK DIAGRAM**



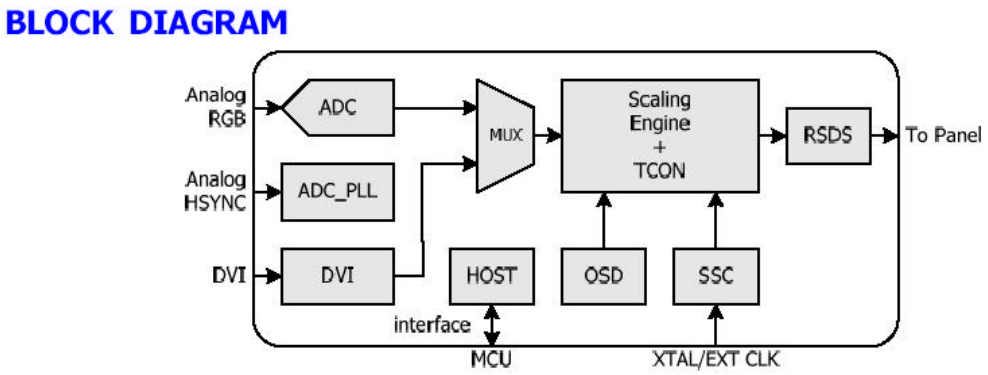
2. Micro Controller

The MTV312M micro-controller is an 8051 CPU core embedded device especially tailored for CRT/LCD Monitor applications. It includes an 8051 CPU core, 1024-byte SRAM, 14 built-in PWM DACs , VESA DCC interface, 4-channel A/D converter , and a 64K-byte internal program FLASH-ROM.




3. TSU57AK

The TSU57AK is a high performance, and fully integrated graphics process IC solution for LCD monitors with resolution up to SXGA. It is configured with an integrated triple-ADC/PLL, a high quality scaling engine, an on-screen display controller, a built-in output clock generator, a panel timing controller (TCON), an integrated DVI receiver, and RSDS display interface. To further reduce system costs, the TSU57AK also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.



## 5. Adjusting Procedure

## A. Function Test and Alignment Procedure

**5.1 All Modes Reset**

**You should do "All Model Reset" (Refer to Chap 3. Hot Keys for Function Controls) first. This action will allow you to erase all end-user's settings and restore the factory defaults.**

**5.2 Auto Image Adjust**

**The Auto Adjust is aimed to offer a best screen quality by built-in ASIC. For optimum screen quality, the user has to adjust each function manually.**

A.Turn the computer and LCD monitor on.

B. Press the '**Auto**' button on monitor keypad to Auto Adjust.

C. The LCD monitor will start the Auto Adjust process automatically and run for 10 consecutive seconds, during which time you will notice the image change.

**5.3 Firmware**

**Test Patten : Burn in Model (Refer to Chap3. Hot Keys for Function Control)**

**-Make sure the F/W is the latest version.**

**5.4 DCC**

**Test Patten: EDID program**

**-Make sure it can pass test program.**

**5.5 Window Shut Down**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Checkered Pattern Every One Pixel (50%Green & 50%Blue)**

**Inspection Item: Flicker, Mura**

**5.6 Window BG**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Window standard pattern**

**Inspection Item: Line Defect, Function Defect & Mura**

**5.7 25 Gray**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Full Screen 25% White (Gray)**

**Inspection Item: Particle, Line Defect & Mura**

**5.8 50 Gray**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Full Screen 50% White (Gray)**

**Inspection Item: Bright Dot, Particle, Line Defect & Mura**

**5.9 White Box**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Window standard pattern**

**Inspection Item: Particle, Line Defect, Power, Image Remain & Mura**

**5.10 Black Box**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Window standard pattern**

**Inspection Item: Bright Dot, Line Defect & Power**

**5.11 RED**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Full Screen Red**

**Inspection Item: Bright Dot, Partial & Line Defect**

**5.12 Green**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Full Screen Green**

**Inspection Item: Bright Dot, Partial & Line Defect**

**5.13 Blue**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Full Screen Green**

**Inspection Item: Bright Dot, Partial & Line Defect**

**5.14 Gray_Scale_0-100_V256**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Vertical 64 (256) Gray Scale (Right → Left, From 0 to 100% White)**

**Inspection Item: Line Defect & Function Defect**

**5.15 Gray_Scale_0-100_H256**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Horizontal 64(256) Gray Scale (Up → Down, From 0 to 100% White)**

**Inspection Item: Line Defect & Function Defect**

**5.16 Block Window**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Black block at the center**

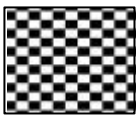
**Inspection Item: Cross Talk & Optical Character**

**5.17 Black_Tile**

**Test Signal: 1280*1024@60Hz**

**Test Pattern:**

**Black tile under white background**



**Inspection Item: Function Defect & Image Remain**

**5-18. Function Test Display pattern**

| Item | Pattern | Description | Remark |
|---|---|---|---|
| **1** | Gray_Scale_0-100_V | Vertical 64 (256) Gray Scale (右→左, From 0 to 100% White) | Figure 1 |
| **2** | Gray_Scale_0-100_H | Horizontal 64 (256) Gray Scale (上→下, From 0 to 100% White) | Figure 2 |
| **3** | Black | Full Screen Black | Figure 3 |
| **4** | Red | Full Screen 50% Red | Figure 4 |
| **5** | Green | Full Screen 50% Green | Figure 5 |
| **6** | Blue | Full Screen 50% Blue | Figure6 |
| **7** | White | Full Screen White | Figure7 |
| **8** | Black_Tile | Black Tile Under White Background | Figure 8 |

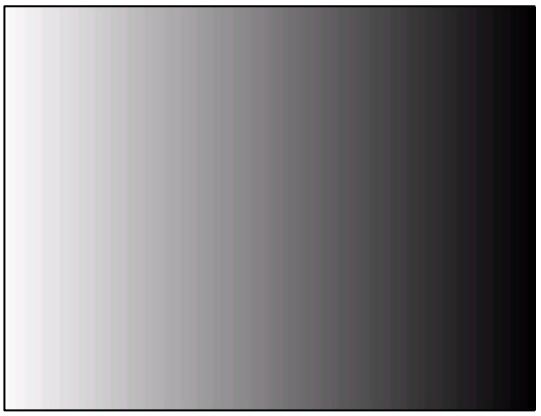


FIGURE 1

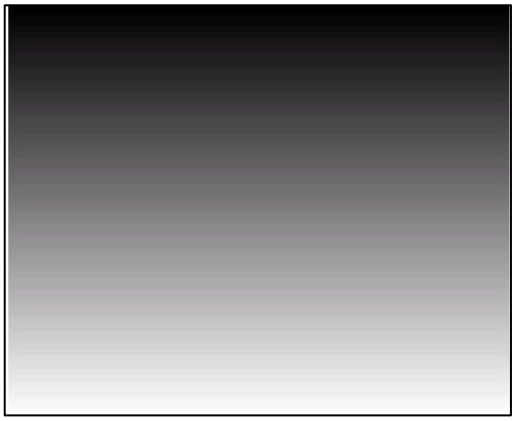


FIGURE 2

Figure 3

Figure 4

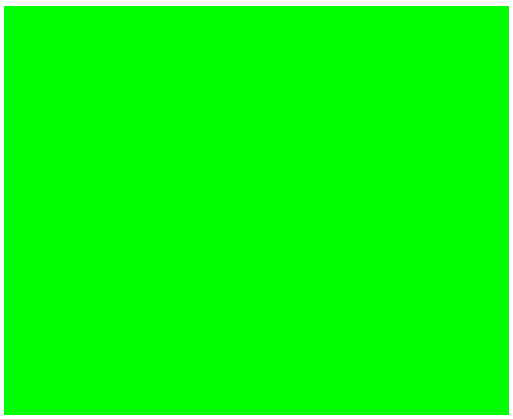


FIGURE 5

FIGURE 6

FIGURE 7

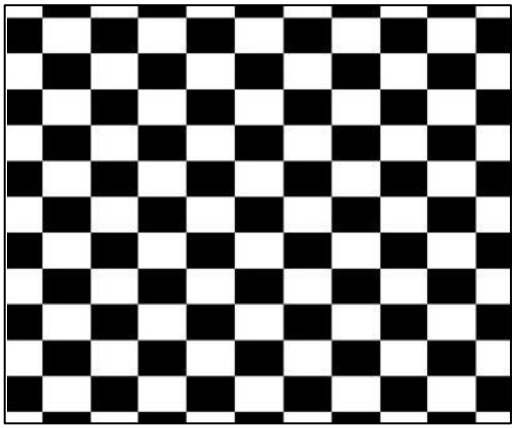


FIGURE 8

## B. BIOS update procedure

**BIOS Update User Guide**

BIOS U FLOW FOR GENESIS

1.1 Program：

1. 1. 1. Software

a. Please download the file " M-Star" from CMO E-Sir system. There are ISP & BIOS two files, kindly see as below.

a) ISPACK.EXE: Main program

b) Ancillary .ISPACK.EXE ：Description program

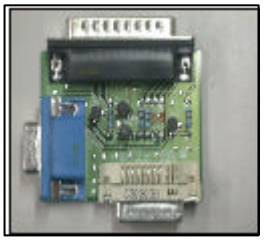
1.1. 2.Hardwar

• D_Sub cable （15Pin）

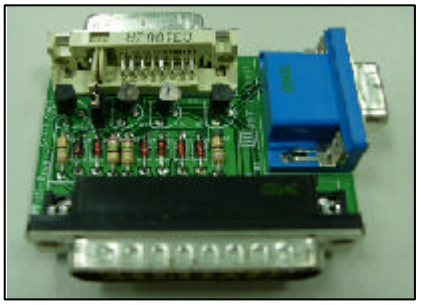
•Point plug [24Pin]

Point plug

D_Sub cable



OR



Without to affect

**1.1.3** Join VGA Cable, PC BAS

1.2 Installation：

A. Please install the programs respectively as below.

B. ISP & BIOS software file to be about to produce the next. (If the file existence already, needn’ t to set up.

C. repeat.) This system is appli

ı 95/98/NT/2000.

1.3 ISP Execution

1. Settings:

Double Click

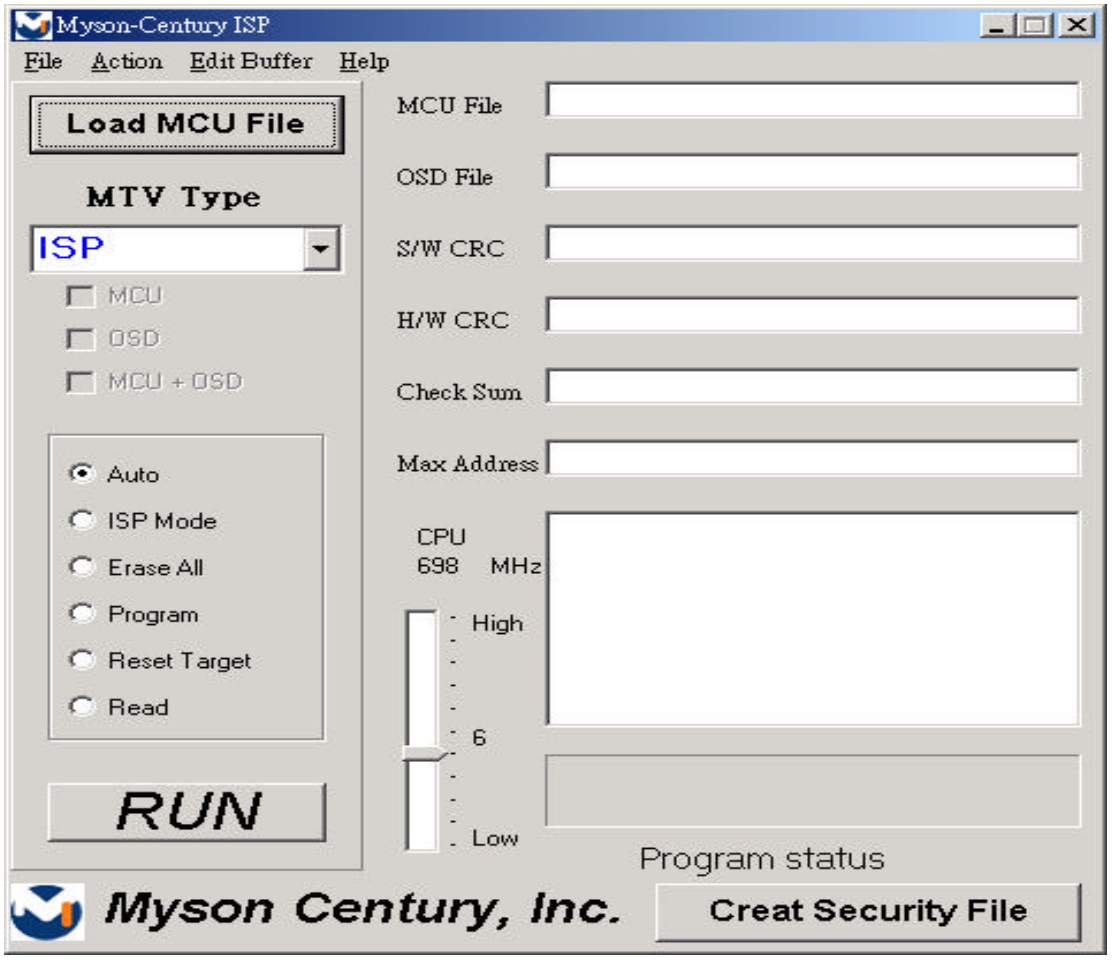
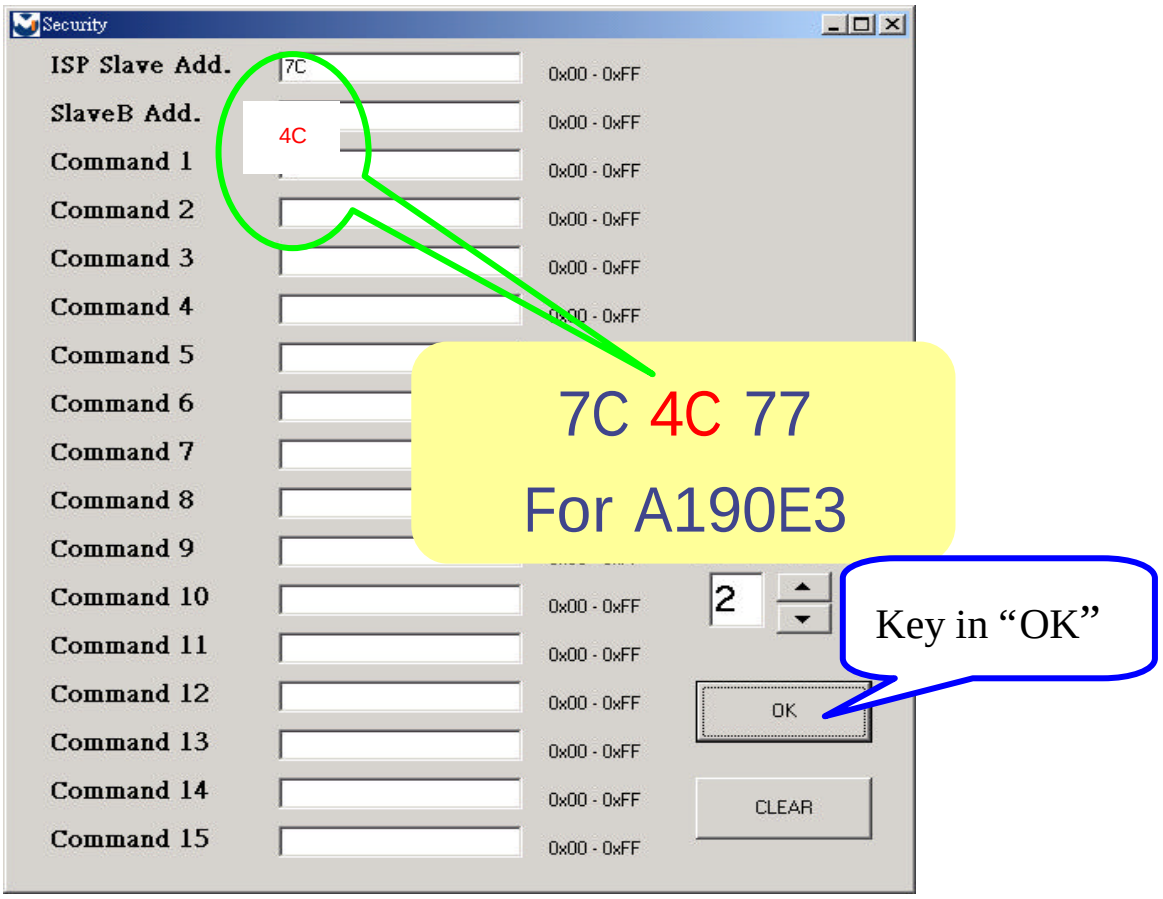
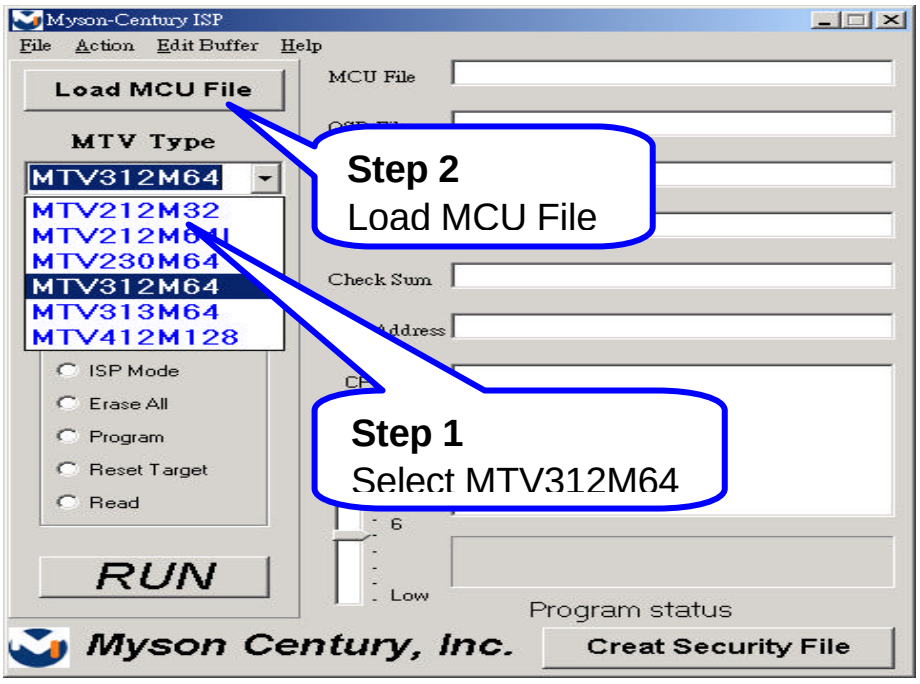



Fig.1: ISP Tool Main Menu

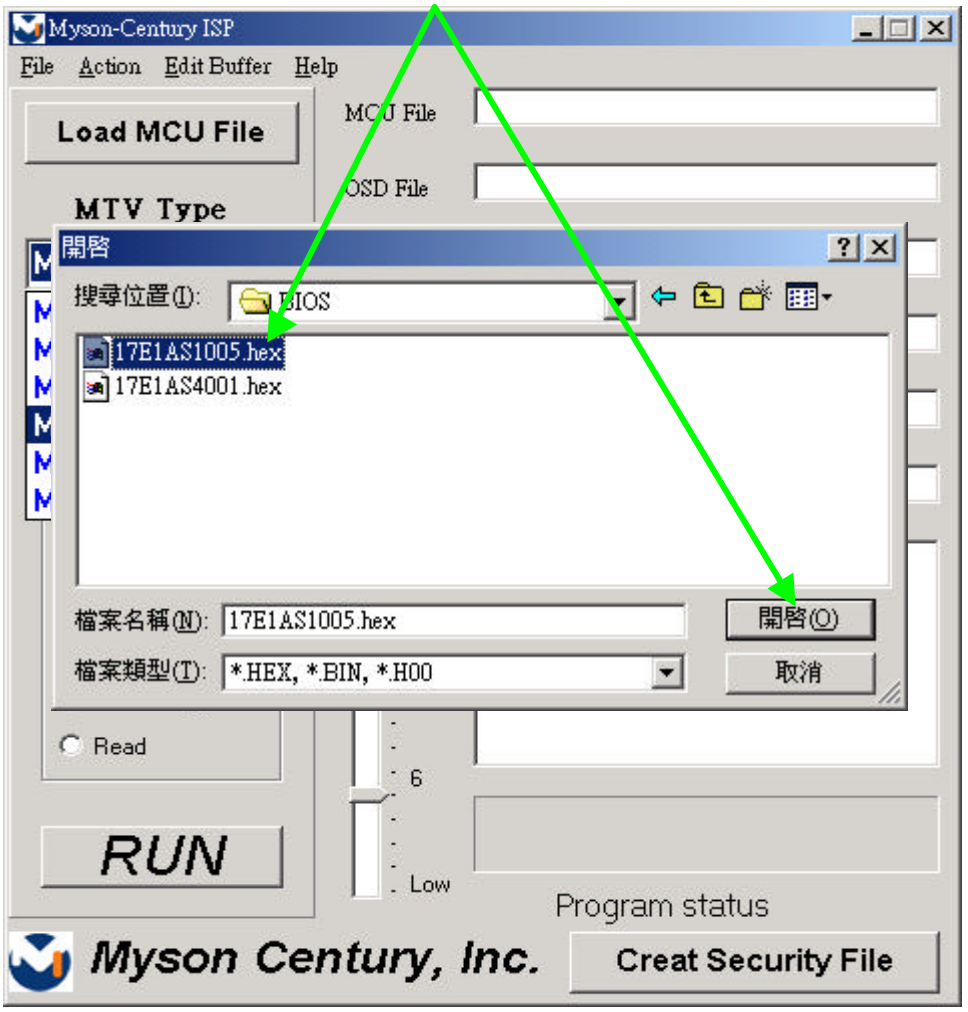
2. When *ISP Tool* executing at the first time, it is required to enter *Security* Data Please press **Creat Security File** , then input related information as Fig.2.

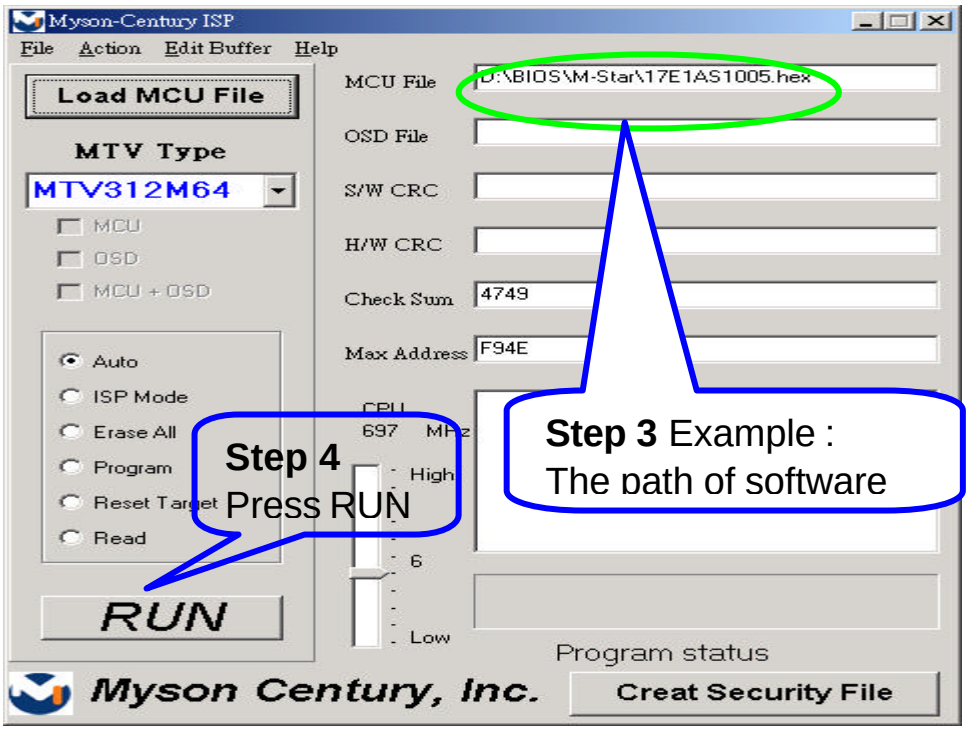


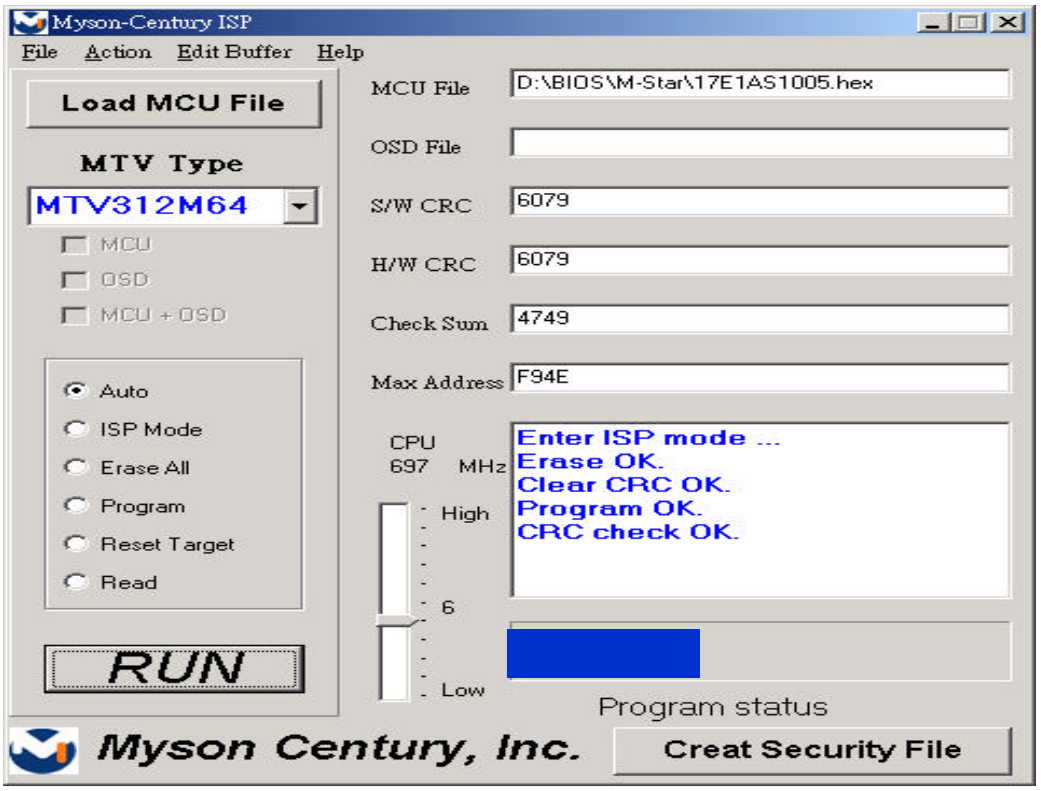

3. Select correct *Micro Controller* as Fig.3.



4. Installation software, Select want download correct file



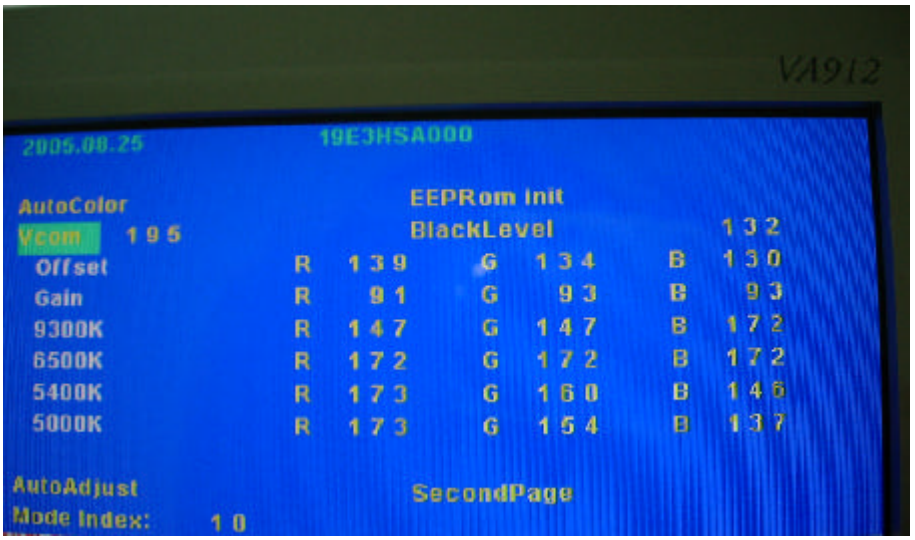






## 1.4.Verification BIOS Update whether success

5. When everything is done. Please turn off the power and restart it again.

**Check *Factory Mode and make sure it already be updated.***

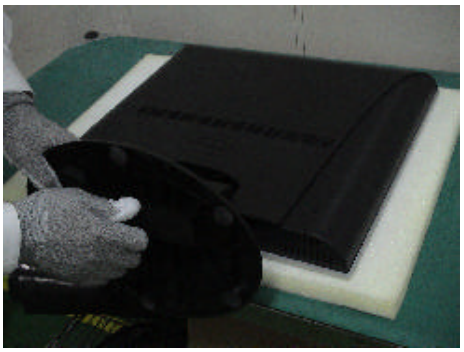


## C. Monitor Assembly and Disassembly

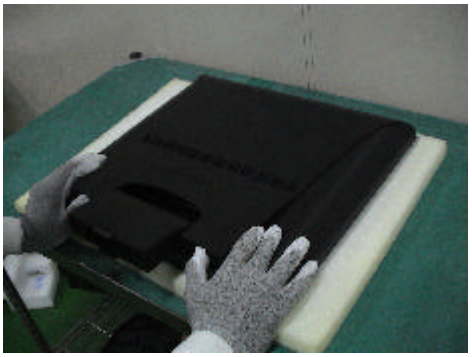
### 1. Separate Stand Assy

#### 1.1 Remove Stand Cover

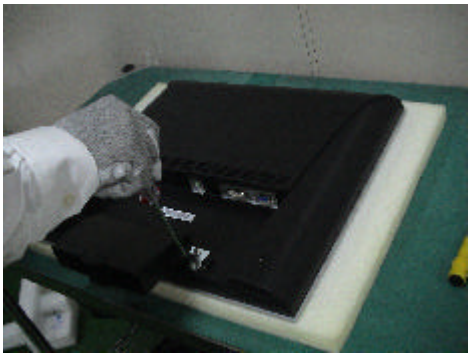
**Step 1 :**
Press Stand Assy's bottom part in Seat Hinge.



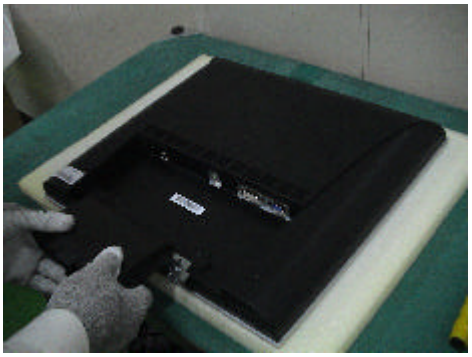
**Step 2 :**
Remove Cover Hinge.



**Step 3 :**
Loose and Remove 4 screws.



**Step 4:**
Remove Stand Assy.



**Step 5:**
Completed

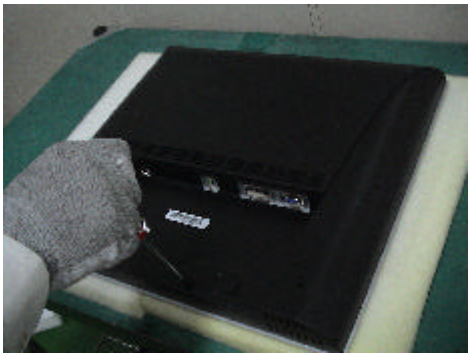
**2. Separate Rear Cover (Rear Case Assy)**

Loosen and remove 5 screws.

Separate Bezel hooks to take Bezel and Rear Cover apart.

**Step 1 :**

Loose and remove 2 screws.

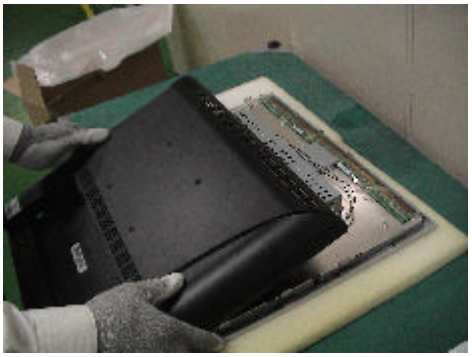


**Step 2 :**

Separate Bezel hooks to take Bezel and Rear Cover apart.

**Step 3 :**

Remove Rear Cover.



**Step 4 :**

Completed

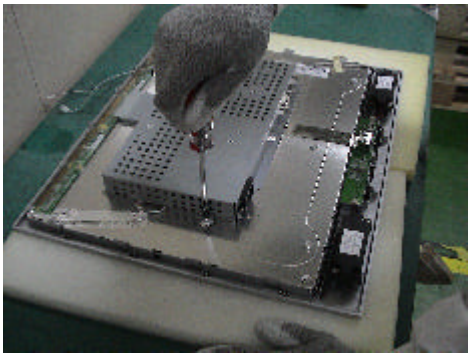
## 3. Remove Power Board

**3.1** Remove 2 pieces of Backlight wires.

### 3.2 Remove Metal Cover

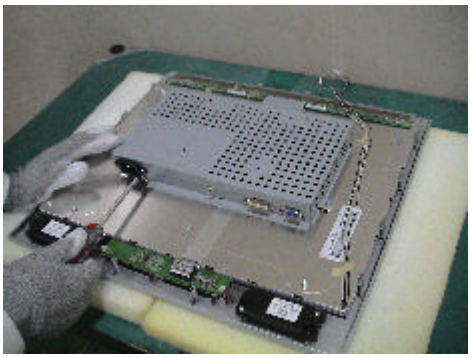
**Step 1 :**

Loose and remove 4 screws.



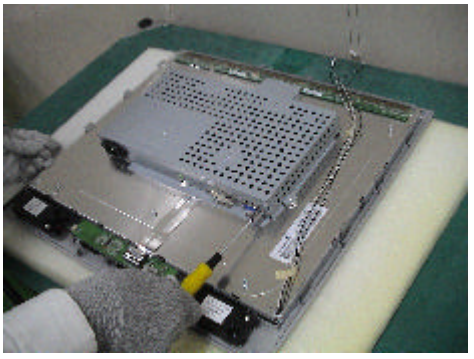
**Step 2 :**

Loose and remove 2 screws.

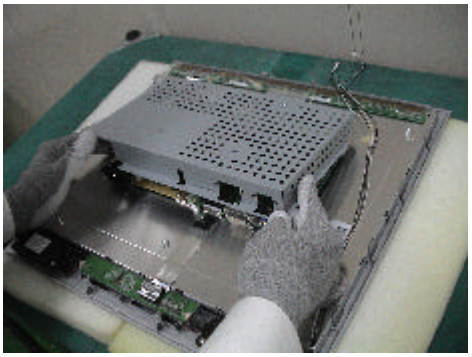


**Step 3 :**

Loose and remove 4 screws.



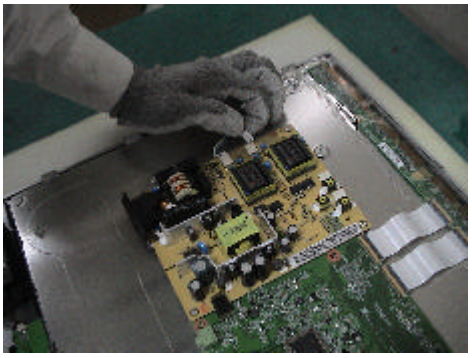
**Step 4 :**
Remove the Cover of X-PCB.



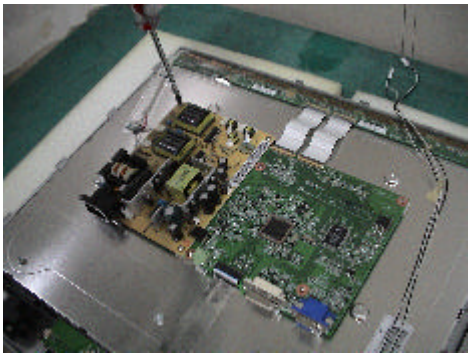
**Step 5 :**
Completed

### 3.3 Remove Power PCBA

**Step 1 :** Insert 2 pieces of Backlight wires.

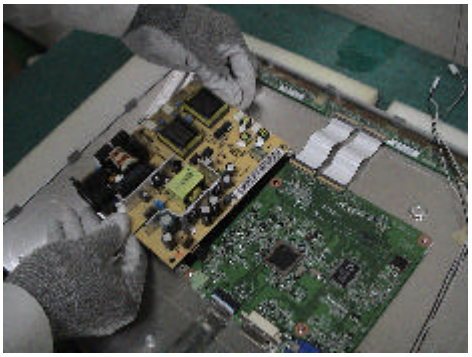


**Step 2 :**
Loose and remove 4 screws.



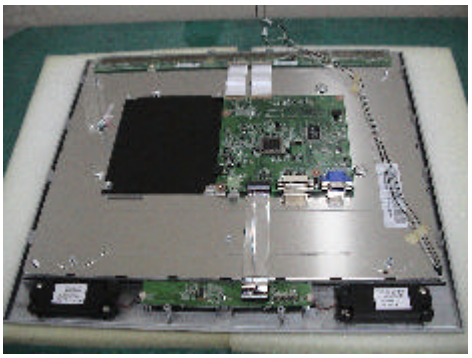
**Step 3 :**

Remove Power PCBA.



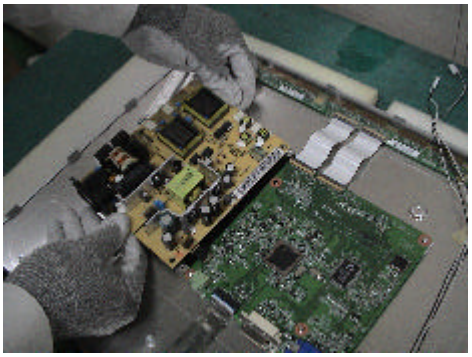
**Step 4 :**

Completed

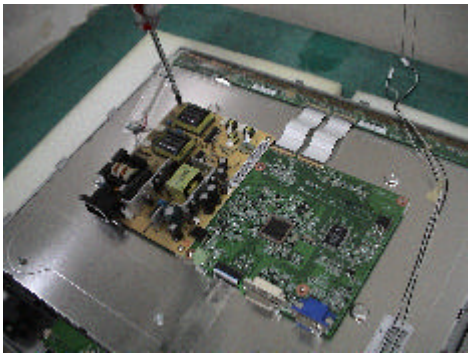


## 4. Change New Power Board

**Step 1 :**
Insert New Power PCBA.



**Step 2 :**
Fasten 4 fixed screws
of Power PCBA .

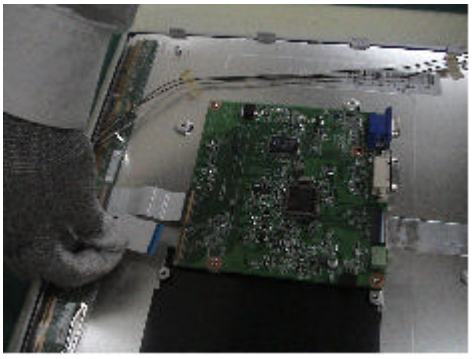


**Step 3 :**
Completed

## 5. Remove AD PCBA

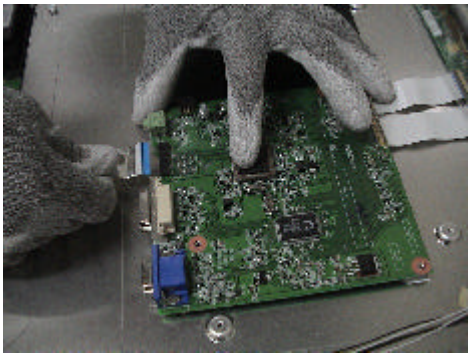
### 5.1 Remove FFC

**Step 1 :**
Remove 2 FFC from AD PCBA.



**Step 2 :**

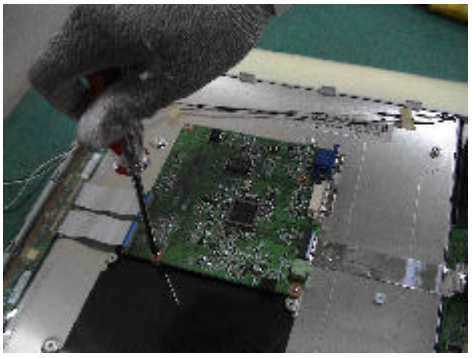
Remove FFC



## 5.2 Remove AD PCBA

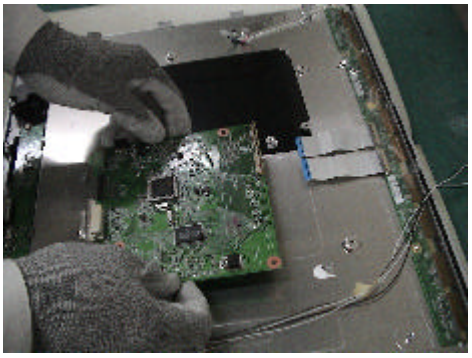
**Step 1 :**

Loose and remove 4 screw

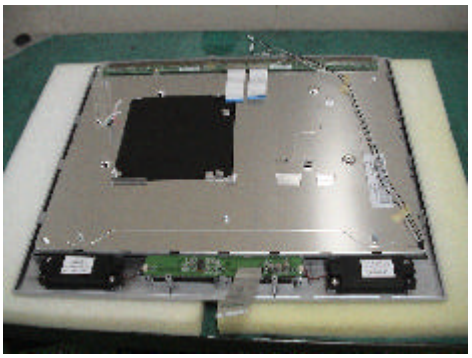


**Step 2 :**

Remove AD PCBA.

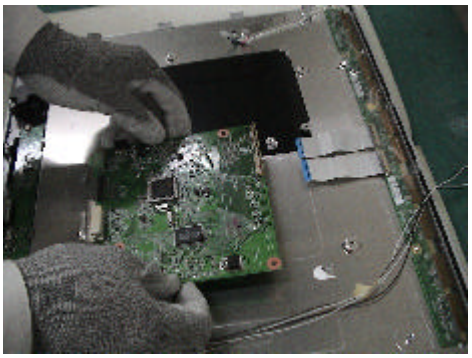


**Step 3 :**
Completed

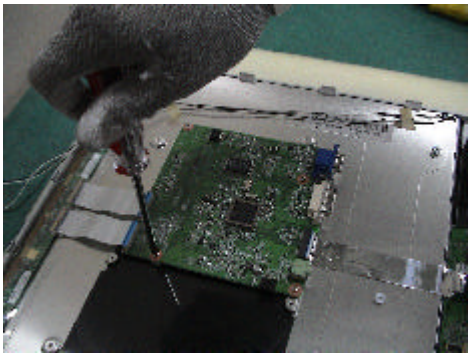


## 6. Change New AD PCBA

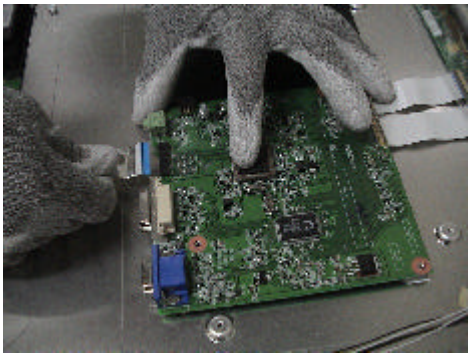
**Step 1 :**
Place New AD PCBA.



**Step 2 :**
Fasten 4 screw.



**Step 3 :**
Insert FFC.

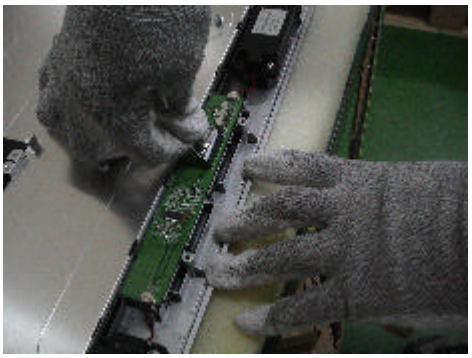


**Step 4 :**
Insert 2 FFC.

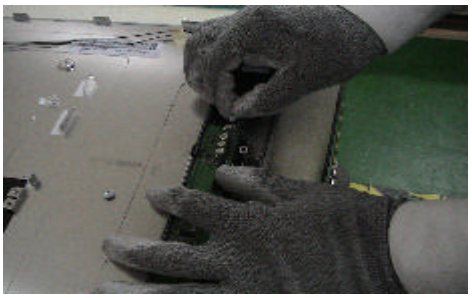
**Step 5 :**
Completed

## 7 Remove OSD PCBA

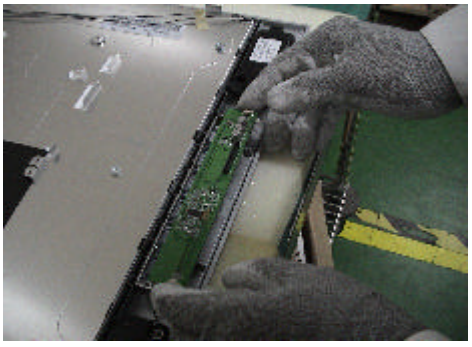
**Step 1 :**
Remove FFC.



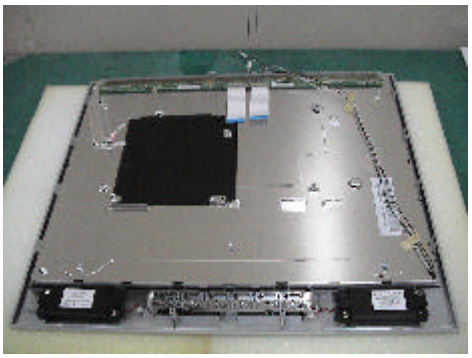
**Step 2 :**
Separate both Audio Cable.



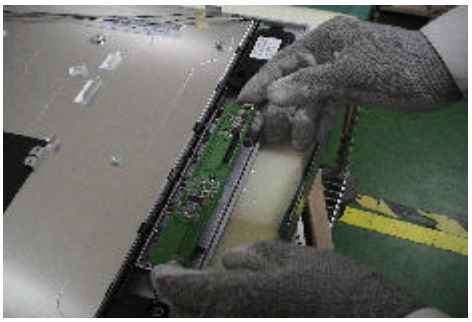
**Step 3 :**
Take OSD PCBA apart.



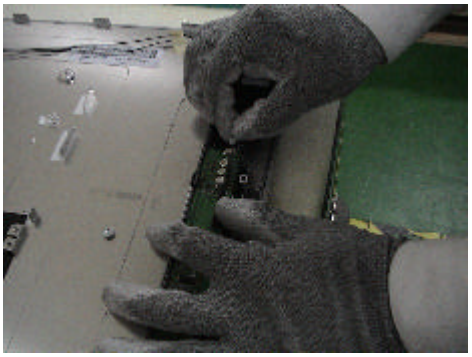
**Step 4 :**
Completed.



## 8. Change New OSD PCBA



**Step 1 :**
Place New OSD PCBA.



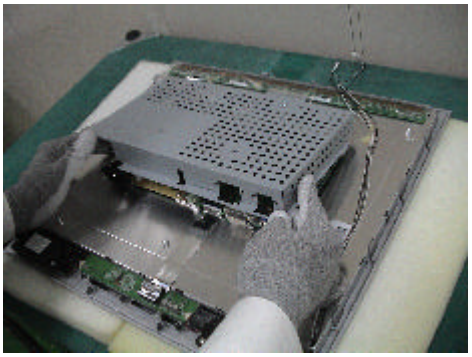
**Step 2 :**
Insert Audit Cable to connectors of OSD PCBA.

**Step 3 :**
Completed.

## 9. Add Cover to AD PCB Heatsink

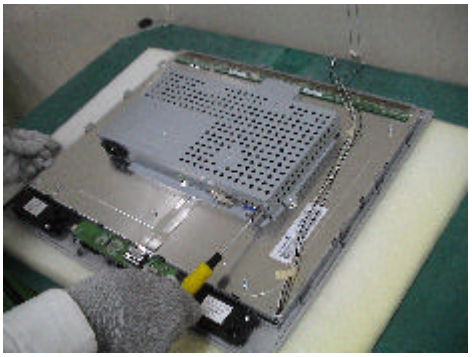
**Step 1 :**

Join the cover hooks of X-PCB.



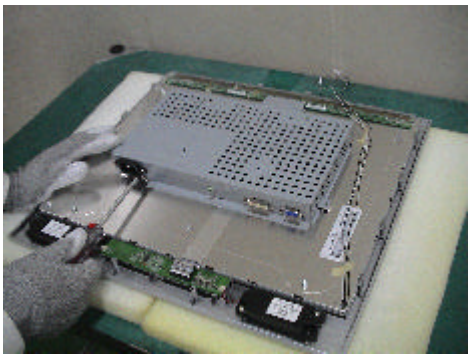
**Step 2 :**

Fasten the 4 screws.



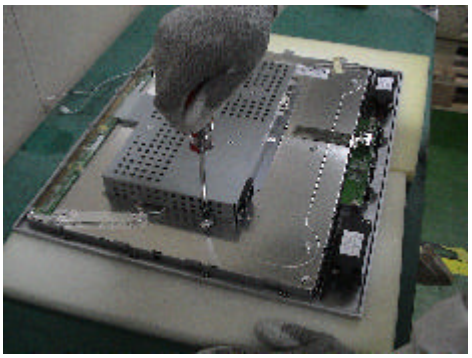
**Step 3 :**

Fasten 2 screws.



**Step 4 :**

Fasten the 4 screws.

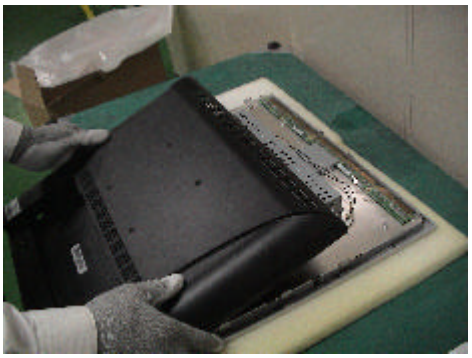


**Step 5 :**

Completed

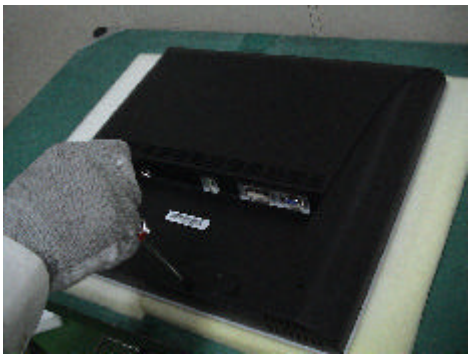
## 10. Rear Assy Assembly

**Step 1 :**
Place Rear Cover.



**Step 2 :**
Join Rear Cover with Bezel.

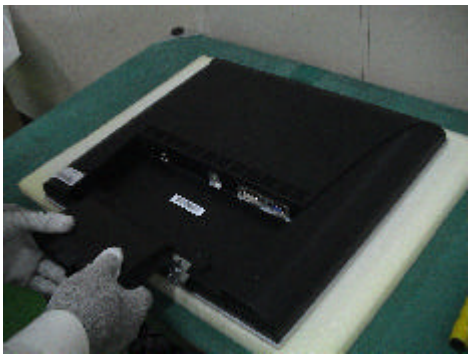
**Step 3 :**
Fasten 2 screws.



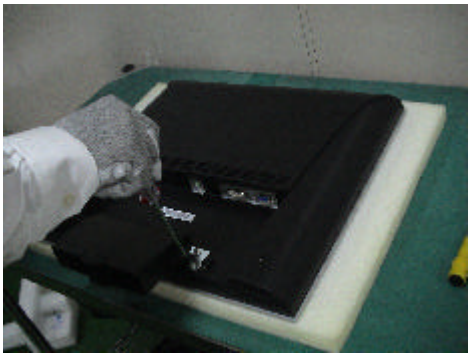
**Step 4 :**
Completed

## 11. Stand Assy Assembly

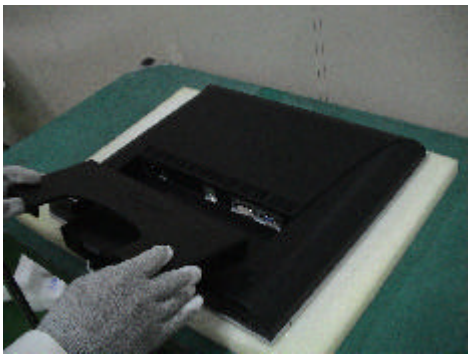
**Step 1 :**
Place Stand Assy .



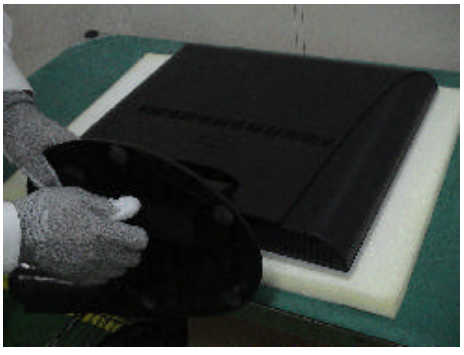
**Step 5 :**
Fasten 4 screws to fixed Stand Assy.



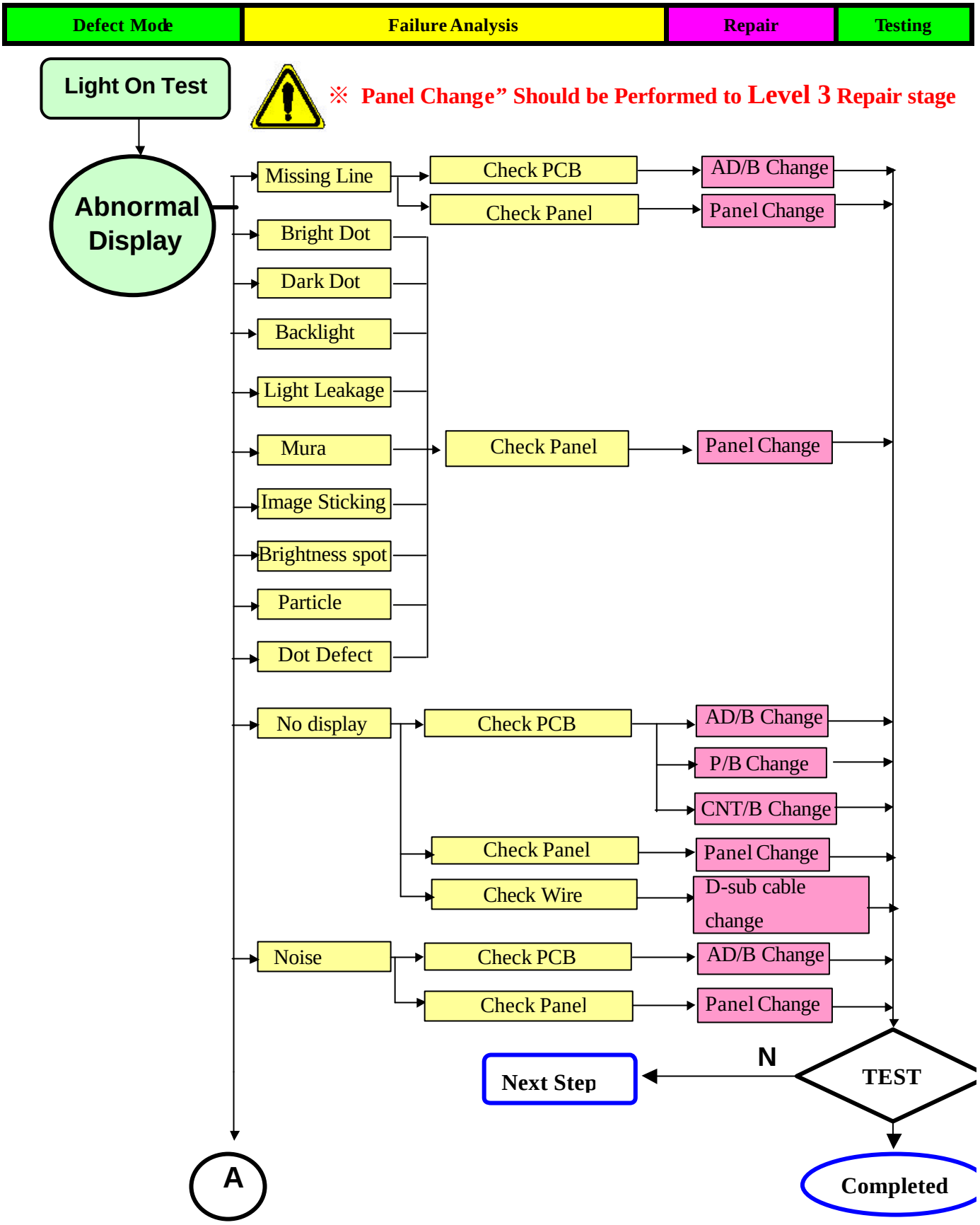
**Step 6 :**
Insert Cover Hinge.



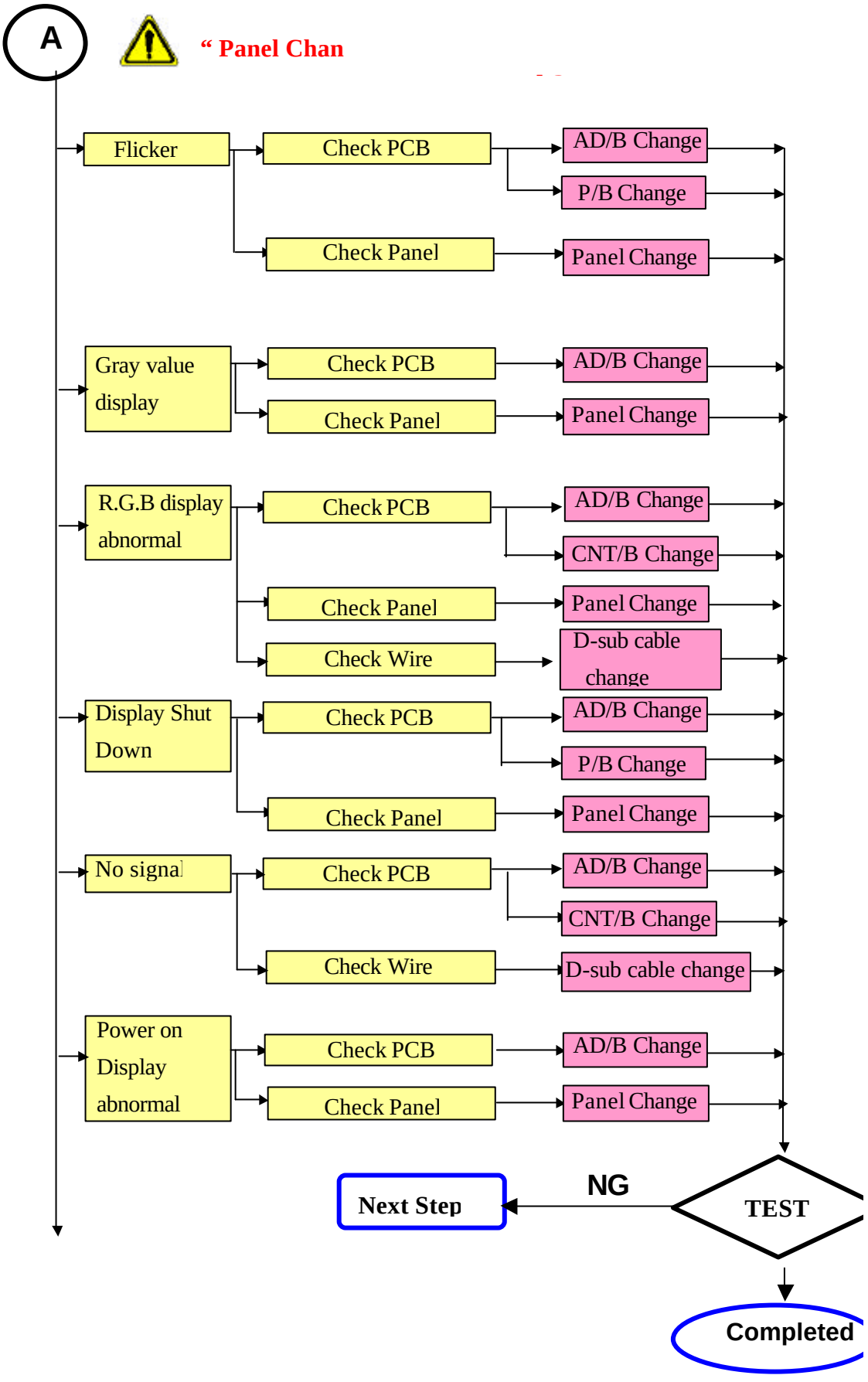
**Step 7 :**
Place Stand Assy.



## 6. Trouble Shooting Flow Chart

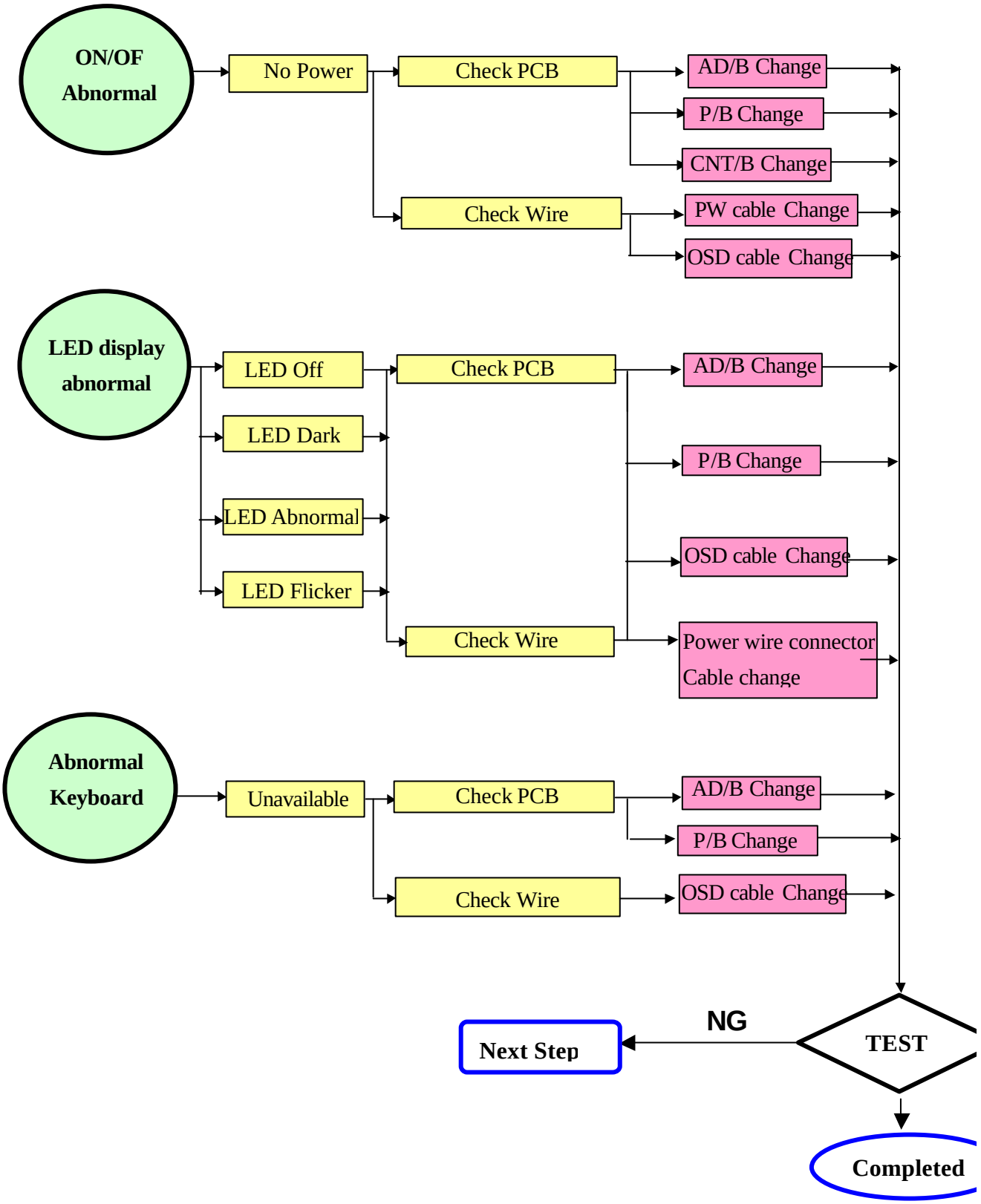


| Defect Mode | Failure Analysis | Repair | Testing |
|---|---|---|---|



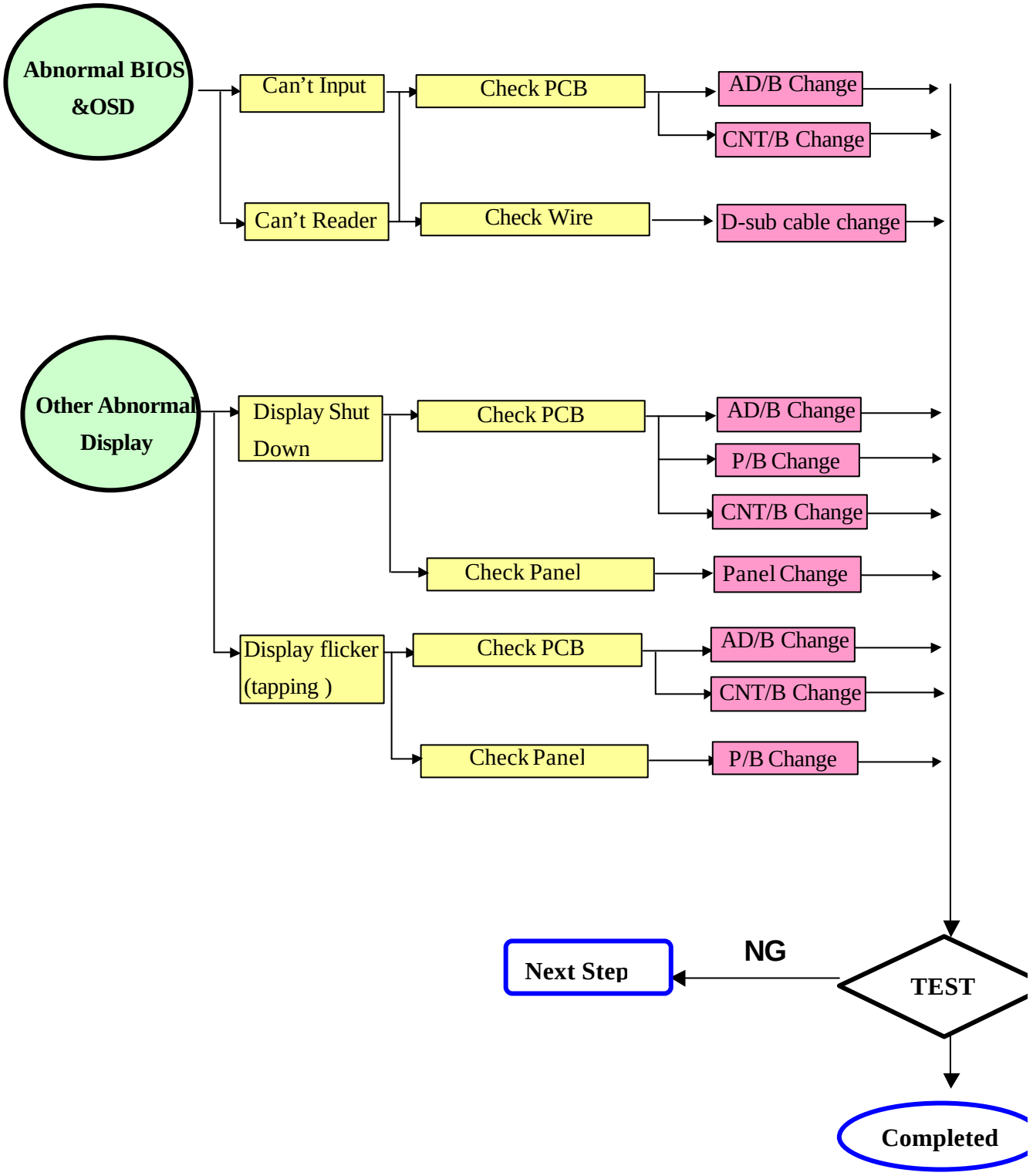
| Defect Mode | Failure Analysis | Repair | Testing |
|---|---|---|---|

※ “ Panel Change” Should be Performed to Level 3 Repair stage



| Defect Mode | Failure Analysis | Repair | Testing |
|---|---|---|---|

※ " Panel Change" Should be Performed to Level 3 Repair stage



## ◆ Trouble Shooting Analysis

Check the information in this section to see if the problems can be solved before requesting repair.

**Note：The consumers are only allowed to solve the problems described as below. Any unauthorized product modification, or failure to follow instructions supplied with the product will end the warranty immediately.**

- **No image**
  - ◆ Make sure power button is ON.
  - ◆ Check whether the LCD monitor and computer power cords are plugged and whether there is a supply of power.
- **No Signal Input**
  - ◆ Check the signal connection between the computer and LCD monitor.
- **“Out of Range”**
  - ◆ Check the computer image output resolution and frequency and compare the value with the preset values (Please refer to [Appendix-Display Mode]).
- **Fuzzy Image**
  - ◆ Adjust Phase.
- **Image too bright**
  - ◆ Adjust brightness and contrast by OSD.
- **Image too dark**
  - ◆ Adjust brightness and contrast by OSD.
- **Irregular image**
  - ◆ Check the signal connection between the computer and LCD monitor.
  - ◆ Perform Auto Adjust.
- **Distorted image**
  - ◆ Reset the LCD monitor
  - ◆ Take off extra accessories (such as signal extension cord).
- **Image is not centered**
  - ◆ Use OSD Image Menu to adjust H_Position and V_Position.
  - ◆ Check image size setting.
  - ◆ Perform Auto Adjust.
- **Size is not appropriate**

- Use OSD Image Menu to adjust H_Position and V_Position.
- Check image size setting.
- Perform Auto Adjust.

- Use OSD Color Menu to adjust color setting.

- **Color too dark**
  - Use OSD Color Menu to adjust color setting.

- **Dark area distorted**
  - Use OSD Color Menu to adjust color setting.

- **White color is not white**
  - Use OSD Color Menu to adjust color setting.

## 7. Recommend Spare Parts List (RSPL)

### RECOMMENDED SPARE PARTS LIST (VA912-3)

**ViewSonic Model Number: VS10931-1W**

**Rev: 1a**

**Serial No. Prefix: PUQ**

| Item | Description | | ECR/ECN | ViewSonic P/N | Ref. P/N | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|---|---|
| 1 | **Accessories:** | Adapter, Lips Without Audio, DAC-19M001 BF, Ver:00 A, 19 V/2.5 A, 5 V/3 A, 4L, 4.9 mA, 2380 V | | A-00004021 | 27-D003115 | 27-D003115 | | 1 |
| 2 | | Power Code, CEE, SP-023+IS-14, H05VV-F, 3G, 0.75mm2, CT-12, L=1800+/-50mm, I-SHENG, 18AWG, Black, No Bag | | A-00002059 | 32E1818018 (AJ0E3H1E1F/2F) (AJ0E3H1K1F/2F) | 32E1818018 | | 1 |
| 3 | | Power Code, UL, SVT#18/3C, 75℃, LP-30B+LS-13, L=1830+/-50mm, Black, Linetek, 18AWG, No Bag | | A-00000458 | 32E1818015 (AJ0E3H1A1F/2F) | 32E1818015 | | 1 |
| 4 | | Power Cord CCC, 300/500V, 0.75mm2, 3C, PC-323+COC-01, L=1830+/-50mm, Black, Linetek, 18AWG, No Bag | | A-00002058 | 32E1818013 (AJ0E3H1C1F/2F) | 32E1818013 | | 1 |
| 5 | | Power Cord, BSI, H05VV-F, 0.75mm2, 3C, LP-60L+LS-60, L=1830+/-50mm, Black, 18AWG, PSB Mark, Linetek, No Bag | | A-00002057 | 32E1818060 (AJ0E3H1K1F/2F) | 32E1818060 | | 1 |
| 6 | | Power Cord, VCTF 3G 0.75mm^2 CNS CT-08, Black, BSMI, 1800 mm, I Sheng | | A-00004047 | 32-D001922 (AJ0E3H1W1F/2F) | 32-D001922 | | 1 |
| 7 | **Board Assembly:** | PCBA for , A190E3, A190E3-H-S1, 301-72, Rev.07 | | B-00004022 | 35-D004062 | 35-D004062 | | 1 |
| 8 | | PCBA for , A190E3, A190E3-T-K, 303-02, Rev.31 | | B-00004023 | 35-D002998 | 35-D002998 | | 1 |
| 9 | | Bezel Assy, A190E3-H0F, SILVER PANTONE 877C, Injex | | C-00004025 | 40-D003819 (AJ0E3H1A.C.E.K.W2F) | 40-D003819 | | 1 |
| 10 | | Cover Hinge, A190E3-H0F, ABS PA-757N, BLACK C_J91A11B5, Injex | | C-00004026 | 40-D003812 (AJ0E3H1A.C.E.K.W2F) | 40-D003812 | | 1 |
| 11 | | Rear Assy, A190E3-H0F, BLACK C, Injex | | C-00004028 | 40-D003818 (AJ0E3H1A.C.E.K.W2F) | 40-D003818 | | 1 |
| 12 | | Seat Assy, A190E3-H0F, BLACK C, Hontech Precision Industry | | C-00004030 | 40-D003821 (AJ0E3H1A.C.E.K.W2F) | 40-D003821 | | 1 |
| 13 | | Stand Assy, A190E3-H0F, BLACK C, Hontech Precision Industry | | C-00004032 | 40-D003820 (AJ0E3H1A.C.E.K.W2F) | 40-D003820 | | 1 |
| 14 | **Cables:** | Audio Cable, A150X2, 18AWG, 180cm, Black, JCE | | CB-00000544 | 32F2818004 | 32F2818004 | | 1 |
| 15 | | FFC_X, 0.50x45x62xCx(5/5)x(0.175x0.3), 45 Pins, no AL foil | | CB-00004034 | 32-D000557 | 32-D000557 | | 2 |
| 16 | | Monitor Cable, A150X2, 30AWG, 180cm, Black, JCE | | CB-00000547 | 32F3018003 | 32F3018003 | | 1 |
| 17 | | FFC-OSD, 22 Pins, TennRich | | CB-00004035 | 32-D003899 | 32-D003899 | | 1 |
| 18 | **Documentation:** | Carton Label for , A190E3-H0F, 20 mmx20 mm, Chang Huang, VSC_VA912-3 | | DC-00004036 | 77-D004154 | 77-D004154 | | 1 |
| 19 | | Carton Label for , A190E3-H0F, 76.2 mmx76.2 mm, Chang Huang, VSC(VA912-3) | | DC-00004037 | 77-D004123 (AJ0E3H1A.C.E.K.W2F) | 77-D004123 | | 1 |
| 20 | | Label, Bar-Code Labe, 55*13mm | | DC-00002073 | 7741519181 | 7741519181 | | 1 |
| 21 | | MENU for VSC_VA912-3, Paper, 1C, Yi-Ching Special Printing, A190E3-H0F | | DC-00004039 | 76-D004095 (AJ0E3H1C.E.K.W1F/2F) | 76-D004095 | | 1 |
| 22 | | MENU for VSC_VA912-3+Caution Card, Paper, 1C, Yi-Ching Special Printing, A190E3-H0F | | DC-00004040 | 76-D004134 (AJ0E3H1A1F/2F) | 76-D004134 | | 1 |
| 23 | | Safety Label for , A190E3-H0F, 120 mmx50 mm, Chang Huang, VSC_VA912-3 | | DC-00004041 | 77-D004087 (AJ0E3H1A.C.E.K.W2F) | 77-D004087 | | 1 |

| Item | Description | | ECR/ECN | ViewSonic P/N | Ref. P/N | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|---|---|
| 24 | **Hardware:** | Screw, M3*P0.5*4, f 5.5*2 | | HW-00000553 | 42A9930008 | 42A9930008 | | 2000 |
| 25 | | Screw, M3*P1.27*12, f 5.5*2 | | HW-00000556 | 42A9990005 | 42A9990005 | | 2000 |
| 26 | | SCREW, M4, P=0.7 mm, L=15 mm, Special Thin Head, Phillips Cross Recess, Screw_with_Washer, SHYE CHING SCREW | | HW-00002442 | 42-D000314 | 42-D000314 | | 2000 |
| 27 | | SCREW, M4, P=0.7 mm, L=8 mm, Round Head, Phillips Cross Recess, plate Ni, Screw_with_Washer, SHYE CHING SCREW, head D8 | | HW-00004042 | 42-D000649 | 42-D000649 | | 2000 |
| 28 | | Stand-Off 4 #-40*11.8 | | M-00000559 | 42A9940007 | 42A9940007 | | 2000 |
| 29 | **Miscellaneous:** | Tape, Security Tape, OPP, L900xW50x0.045mm, VSC | | M-00000560 | 7345511002 | 7345511002 | | 1 |
| 30 | **Packing Material:** | Carton, A190E3-H0F, 536 mmx148 mmx475 mm, Chen Ti Paper, VSC_VA912-3 | | P-00004043 | 78-D004088 (AJ0E3H1A.C.E.K.W2F) | 78-D004088 | | 1 |
| 31 | | Cushion, A190E3-H0F, PE_LD, White, 530 mmx140 mmx50 mm, N/A, Hwa Chang, PE_Foam(BOTTOM) | | P-00004045 | 78-D003913 | 78-D003913 | | 1 |
| 32 | | Cushion, A190E3-H0F, PE_LD, White, 530 mmx140 mmx50 mm, N/A, Hwa Chang, PE_Foam(TOP) | | P-00004046 | 78-D003911 | 78-D003911 | | 1 |
| 33 | | Inner Box, 456x290x38mm, A190E1-H01 | | P-00000594 | 7841935111 | 7841935111 | | 1 |
| 34 | | PE Foam Bag, Protector, 570*600*0.13, A190E1-H01, white | | P-00000595 | 7841919921 | 7841919921 | | 1 |

## RECOMMENDED SPARE PARTS LIST (VA912b-3)

**ViewSonic Model Number: VS10931-1W**

**Rev: 1a**

**Serial No. Prefix: PUR**

| Item | | Description | ECR/ECN | ViewSonic P/N | Ref. P/N | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|---|---|
| 1 | **Accessories:** | Adapter, Lips Without Audio, DAC-19M001 BF, Ver:00 A, 19 V/2.5 A, 5 V/3 A, 4L, 4.9 mA, 2380 V | | A-00004021 | 27-D003115 | 27-D003115 | | 1 |
| 2 | | Power Code, CEE, SP-023+IS-14, H05VV-F, 3G, 0.75mm2, CT-12, L=1800+/-50mm, I-SHENG, 18AWG, Black, No Bag | | A-00002059 | 32E1818018 (AJ0E3H1E1F/2F) (AJ0E3H1K1F/2F) | 32E1818018 | | 1 |
| 3 | | Power Code, UL, SVT#18/3C, 75℃, LP-30B+LS-13, L=1830+/-50mm, Black, Linetek, 18AWG, No Bag | | A-00000458 | 32E1818015 (AJ0E3H1A1F/2F) | 32E1818015 | | 1 |
| 4 | | Power Cord CCC, 300/500V, 0.75mm2, 3C, PC-323+COC-01, L=1830+/-50mm, Black, Linetek, 18AWG, | | A-00002058 | 32E1818013 (AJ0E3H1C1F/2F) | 32E1818013 | | 1 |
| 5 | | Power Cord, BSI, H05VV-F, 0.75mm2, 3C, LP-60L+LS-60, L=1830+/-50mm, Black, 18AWG, PSB Mark, Linetek, No Bag | | A-00002057 | 32E1818060 (AJ0E3H1K1F/2F) | 32E1818060 | | 1 |
| 6 | | Power Cord, VCTF 3G 0.75mm^2 CNS CT-08, Black, BSMI, 1800 mm, I Sheng | | A-00004047 | 32-D001922 (AJ0E3H1W1F/2F) | 32-D001922 | | 1 |
| 7 | **Board Assembly:** | PCBA for , A190E3, A190E3-H-S1, 301-72, Rev.07 | | B-00004022 | 35-D004062 | 35-D004062 | | 1 |
| 8 | | PCBA for , A190E3, A190E3-T-K, 303-02, Rev.31 | | B-00004023 | 35-D002998 | 35-D002998 | | 1 |
| 9 | **Cabinets:** | Bezel Assy, A190E3-H0F, Midnight Gray, Injex | | C-00004024 | 40-D003822 (AJ0E3H1A.C.E.K.W1F) | 40-D003822 | | 1 |
| 10 | | Cover Hinge, A190E3-H0F, ABS PA-757N, Midnight Gray_H93828B5, Injex | | C-00004027 | 40-D003808 (AJ0E3H1A.C.E.K.W1F) | 40-D003808 | | 1 |
| 11 | | Rear Assy, A190E3-H0F, Midnight Gray, Injex | | C-00004029 | 40-D003817 (AJ0E3H1A.C.E.K.W1F) | 40-D003817 | | 1 |
| 12 | | Seat Assy, A190E3-H0F, Midnight Gray, Hontech Precision Industry | | C-00004031 | 40-D003815 (AJ0E3H1A.C.E.K.W1F) | 40-D003815 | | 1 |
| 13 | | Stand Assy, A190E3-H0F, Midnight Gray, Hontech Precision Industry | | C-00004033 | 40-D003816 (AJ0E3H1A.C.E.K.W1F) | 40-D003816 | | 1 |
| 14 | **Cables:** | Audio Cable, A150X2, 18AWG, 180cm, Black, JCE | | CB-00000544 | 32F2818004 | 32F2818004 | | 1 |
| 15 | | FFC_X, 0.50x45x62xCx(5/5)x(0.175x0.3), 45 Pins, no AL foil | | CB-00004034 | 32-D000557 | 32-D000557 | | 2 |
| 16 | | Monitor Cable, A150X2, 30AWG, 180cm, Black, JCE | | CB-00000547 | 32F3018003 | 32F3018003 | | 1 |
| 17 | | FFC-OSD, 22 Pins, TennRich | | CB-00004035 | 32-D003899 | 32-D003899 | | 1 |
| 18 | **Documentation:** | Carton Label for , A190E3-H0F, 76.2 mmx76.2 mm, Chang Huang, VSC(VA912b-3) | | DC-00004038 | 77-D004122 (AJ0E3H1A.C.E.K.W1F) | 77-D004122 | | 1 |
| 19 | | Label, Bar-Code Labe, 55*13mm | | DC-00002073 | 7741519181 | 7741519181 | | 1 |
| 20 | | MENU for VSC_VA912-3, Paper, 1C, Yi-Ching Special Printing, A190E3-H0F | | DC-00004039 | 76-D004095 (AJ0E3H1C.E.K.W1F/2F) | 76-D004095 | | 1 |
| 21 | | MENU for VSC_VA912-3+Caution Card, Paper, 1C, Yi-Ching Special Printing, A190E3-H0F | | DC-00004040 | 76-D004134 (AJ0E3H1A1F/2F) | 76-D004134 | | 1 |
| 22 | | Safety Label for , A190E3-H0F, 120 mmx50 mm, Chang Huang, VSC_VA912b-3 | | DC-00004048 | 77-D004094 (AJ0E3H1A.C.E.K.W1F) | 77-D004094 | | 1 |
| 23 | **Hardware:** | Screw, M3*P0.5*4, f 5.5*2 | | HW-00000553 | 42A9930008 | 42A9930008 | | 2000 |
| 24 | | Screw, M3*P1.27*12, f 5.5*2 | | HW-00000556 | 42A9990005 | 42A9990005 | | 2000 |
| 25 | | SCREW, M4, P=0.7 mm, L=15 mm, Special Thin Head, Phillips Cross Recess, Screw_with_Washer, SHYE CHING SCREW | | HW-00002442 | 42-D000314 | 42-D000314 | | 2000 |
| 26 | | SCREW, M4, P=0.7 mm, L=8 mm, Round Head, Phillips Cross Recess, plate Ni, Screw_with_Washer, SHYE CHING SCREW, head D8 | | HW-00004042 | 42-D000649 | 42-D000649 | | 2000 |
| 27 | | Stand-Off 4 #-40*11.8 | | M-00000559 | 42A9940007 | 42A9940007 | | 2000 |
| 28 | **Miscellaneous:** | Tape, Security Tape, OPP, L900xW50x0.045mm, VSC | | M-00000560 | 7345511002 | 7345511002 | | 1 |
| 29 | **Packing Material:** | Carton, A190E3-H0F, 536 mmx148 mmx475 mm, Chen Ti Paper, VSC_VA912b-3 | | P-00004044 | 78-D004092 (AJ0E3H1A.C.E.K.W1F) | 78-D004092 | | 1 |
| 30 | | Cushion, A190E3-H0F, PE_LD, White, 530 mmx140 mmx50 mm, N/A, Hwa Chang, PE_Foam(BOTTOM) | | P-00004045 | 78-D003913 | 78-D003913 | | 1 |
| 31 | | Cushion, A190E3-H0F, PE_LD, White, 530 mmx140 mmx50 mm, N/A, Hwa Chang, PE_Foam(TOP) | | P-00004046 | 78-D003911 | 78-D003911 | | 1 |
| 32 | | Inner Box, 456x290x38mm, A190E1-H01 | | P-00000594 | 7841935111 | 7841935111 | | 1 |
| 33 | | PE Foam Bag, Protector, 570*600*0.13, A190E1-H01, white | | P-00000595 | 7841919921 | 7841919921 | | 1 |

## BOM LIST (VA912/b-3)

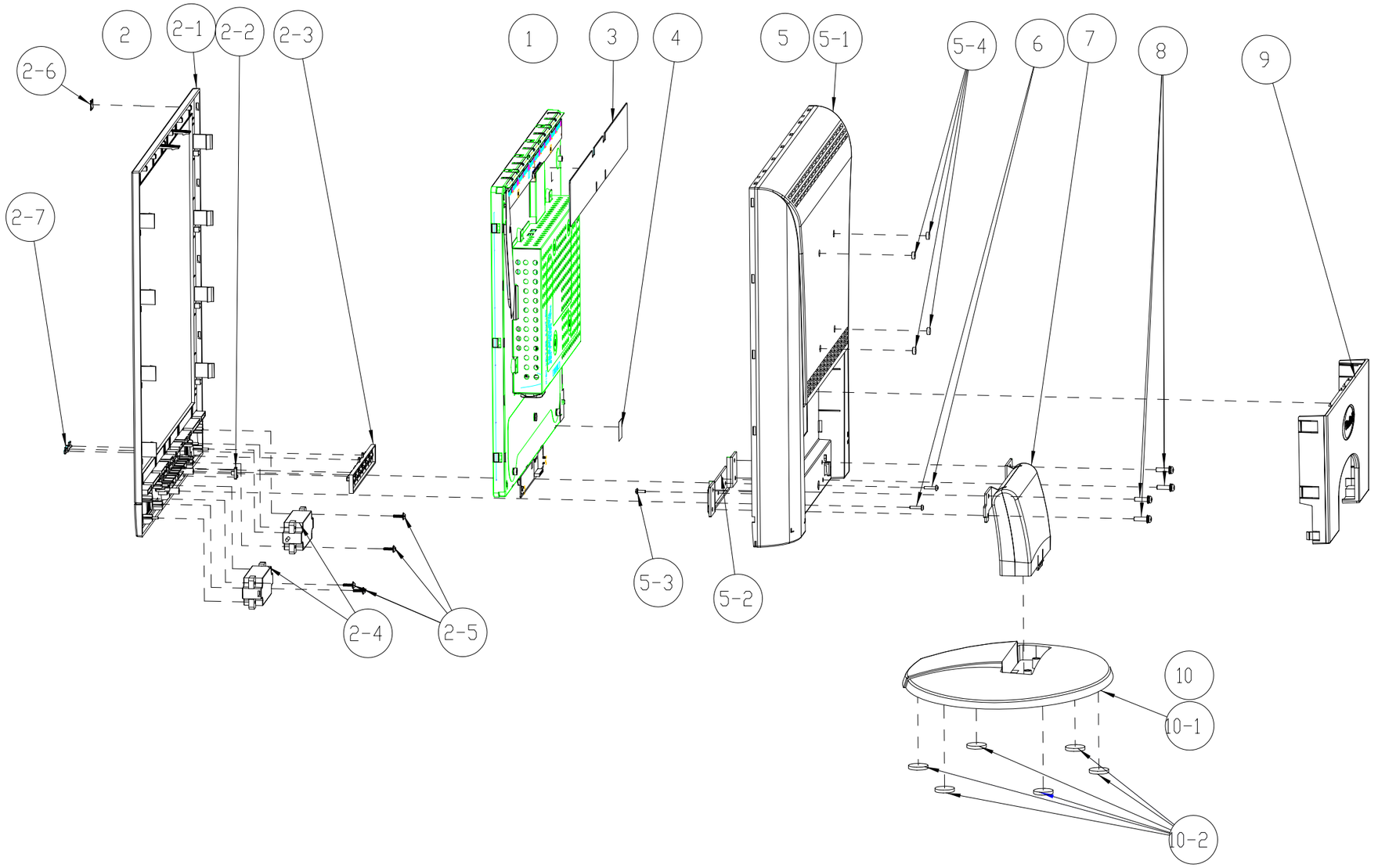
**ViewSonic Model Number: VS10931-1W**

**Rev: 1a**

| Item | ViewSonic P/N | Ref. P/N | Description | Location | Q'ty |
|---|---|---|---|---|---|
| 1 | #N/A | MJ0E501K01 | 19" Semi Product,19E5-L01,Default | | 1 |
| 2 | #N/A | L3J005XXXX | 19"E5 TN PS Asahi 0.7mm glass | common | 1 |
| 3 | #N/A | 7414119023 | CF Polarizer M190E5,383.15x307.85x0.215,135°,Optimax LPT-HL56-T12AGA1SU | common | 1 |
| 4 | #N/A | 7414119024 | TFT Polarizer M190E5,380.52x304.13x0.215,135°,Optimax LPT-HL56-T12SU | common | 1 |
| 5 | #N/A | 36-D001339 | Driver IC,Scan,A170E1,HX8633CPD400,256Channel | common | 1 |
| 6 | #N/A | 36X8002971 | Driver IC,COF,Data,HX8002CB97,COF,A190E3-H&M190E5-L01,384Channel | common | 10 |
| 7 | #N/A | 7344191017 | ACF,AC-4251FY-16,100M/RL | common | 0.00398 |
| 8 | #N/A | 73-D002676 | ACF,PCB,AC-9825R-35,100000 mmx1.5 mm | common | 0.00398 |
| 9 | #N/A | 73-C000047 | ACF,COG,AC-8405Z-23 1.5mmX100M,100000 mmx1.5 mm | common | 0.00398 |
| 10 | #N/A | 35-D002646 | PCBA for ,A190E3-H,A190E3-H-X,301-03,Rev.03 | common | 1 |
| 11 | #N/A | 7349951002 | Silicone,TORAY/-9187L,白色,330g | common | 0.4 |
| 12 | #N/A | PJ0EFH0Q06 | Olympic,A190E3,Function BOM,D-sub+DVI+Audio,Morning Star, | | 1 |
| 13 | #N/A | 44-D003904 | Backlight Unit,A190E3 | common | 1 |
| 14 | #N/A | 41-D002813 | Metal Frame Front Assy,A190E3,assy | common | 1 |
| 15 | CB-00004034 | 32-D000557 | FFC,0.50x45x62xCx(5/5)x(0.175x0.3),45 Pins | common | 2 |
| 16 | #N/A | 41-D000546 | Cover AD Assy,A190E3,ASSY | common | 1 |
| 17 | HW-00000556 | 42A9990005 | Screw,M3*P1.27*12 | | |
| 18 | HW-00000553 | 42A9930008 | Screw,M3*P0.5*4 | common | 15 |
| 19 | HW-00004042 | 42-D000649 | SCREW,M4,P=0.7 mm,L=8 mm,Round Head,Phillips Cross Recess,plate Ni,Screw_with_Washer | common | 1 |
| 20 | #N/A | 41-D000632 | PCBA Cover Assy,A190E3,ASSY | common | 1 |
| 21 | #N/A | 73-D004702 | Isolated Tape,PET,147 mmx137 mmx0.1 mm | common | 1 |
| 22 | A-00004021 | 27-D003115 | Lips Without Audio,DAC-19M001 BF,Ver:00 A,19 V/2.5 A,5 V/3 A,4L,4.9 mA,2380 V | common | 1 |
| 23 | C-00004030 | 40-D003821 | Seat Assy,A190E3-H0F,BLACK C | | 1 |
| 24 | B-00004023 | 35-D002998 | PCBA for ,A190E3,A190E3-T-K,303-02,Rev.31 | | 1 |
| 25 | CB-00004035 | 32-D003899 | FFC,22 Pins | | 1 |
| 26 | HW-00002442 | 42-D000314 | SCREW,M4,P=0.7 mm,L=15 mm,Special Thin Head | | 4 |
| 27 | M-00000559 | 42A9940007 | Stand-Off 4 #-40*11.8 | common | 4 |
| 28 | #N/A | 73-D001960 | Spacer,tape,BLACK,308 mmx2 mmx0.1 mm | common | 2 |
| 29 | #N/A | 73-D002812 | Spacer,polyester film,black,379 mmx2.5 mmx0.08 mm | common | 2 |
| 30 | B-00004022 | 35-D004062 | PCBA for ,A190E3,A190E3-H-S1,301-72,Rev.07 | common | 1 |
| 31 | #N/A | PJ0EAAS000(A1F.A2F)<br>PJ0EACS000(C1F.C2F)<br>PJ0EAET000(E1F.E2F)<br>PJ0EAKU000(K1F.K2F)<br>PJ0EAW5000(W1F.W2F) | Olympic,19",Accessory BOM,D-sub+Audio,USA 3 pin,Black,Power built-in;RoHS<br>Olympic,19",Accessory BOM,D-sub+Audio,China 3 pin,Black,Power built-in;RoHS<br>Olympic,19",Accessory BOM,D-sub+Audio,European / Korea 2 pin,Black,Power built-in;RoHS<br>Olympic,19",Accessory BOM,D-sub+Audio,None,Black,Two power cords of UK & EU for VSC,Power built-in;RoHS<br>Olympic,19",Accessory BOM,D-sub+Audio,Taiwan 3 pin,Black,Power built-in;RoHS | | 1 |
| 32 | CB-00000544 | 32F2818004 | Audio Cable,A150X2,18AWG,180cm,Black,JCE | common | 1 |
| 33 | CB-00000547 | 32F3018003 | Monitor Cable,A150X2,30AWG,180cm,Black,JCE | common | 1 |
| 34 | #N/A | 32-D001922 | Power Cord,VCTF 3G 0.75mm^2 CNS CT-08,Black,BSMI,1800 mm | W1F.2F | 1 |

| Item | ViewSonic P/N | Ref. P/N | Description | Location | Q'ty |
|---|---|---|---|---|---|
| 35 | #N/A | PJ0EI1F300(A1F)<br>PJ0EI2F300(A2F)<br>PJ0EI1F303(C1F)<br>PJ0EI2F303(C2F)<br>PJ0EI1F301(E1F)<br>PJ0EI2F301(E2F)<br>PJ0EI1F302(K1F)<br>PJ0EI2F302(K2F)<br>PJ0EI1F304(W1F)<br>PJ0EI2F304(W2F) | Olympic,A190E3,ID BOM,D-sub+DVI+Audio,USA,Black,VSC,<br>Olympic,19",ID BOM,D-sub+DVI+Audio,USA,Silver Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,China,Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,China,Silver Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,European,Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,European,Silver Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,UK,Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,UK,Silver Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,TWN,Black,VSC,<br>Olympic,A190E3,ID BOM,D-sub+DVI+Audio,TWN,Silver Black,VSC, | | 1 |
| 36 | C-00004025 | 40-D003819 | Bezel Assy,A190E3-H0F,SILVER PANTONE 877C | A.C.E.K.W2F | 1 |
| 37 | C-00004028 | 40-D003818 | Rear Assy,A190E3-H0F,BLACK C | A.C.E.K.W2F | 1 |
| 38 | C-00004032 | 40-D003820 | Stand Assy,A190E3-H0F,BLACK C | A.C.E.K.W2F | 1 |
| 39 | C-00004026 | 40-D003812 | Cover Hinge,A190E3-H0F,ABS PA-757N | A.C.E.K.W2F | 1 |
| 40 | #N/A | 10-D003929 | Software (EDID_D-SUB),A190E3,Ver.NRVSCxxxxA00,ViewSonic,Checksum(xx),Analog Port | common | 1 |
| 41 | #N/A | 10-D003930 | Software (EDID_DVI),A190E3,Ver.NRVSCxxxxD00,ViewSonic,Checksum(xx),DVI Port | common | 1 |
| 42 | #N/A | 10-D003931 | Software (BIOS),A190E3,Ver.NR19E3HS3000,ViewSonic,Checksum(xxxx),RSDS,Dual+Audio | common | 1 |
| 43 | P-00002378 | 73-D001222 | Panel Protector Film,A190E2-H06,mylar | common | 1 |
| 44 | #N/A | 7345511002 | Tape,Security Tape,OPP,L900xW50x0.045mm,VSC | common | 0.058 |
| 45 | DC-00004041 | 77-D004087 | Safety Label for ,A190E3-H0F | A.C.E.K.W2F | 1 |
| 46 | #N/A | 77-D004093 | SN Label for ,A190E3-H0F | A.E.K.W2F | 1 |
| 47 | #N/A | 7741519181 | Label,Bar-Code Labe | common | 1 |
| 48 | #N/A | 7741513161 | Label,Pallet Barcode Label | common | 0.021 |
| 49 | DC-00004036 | 77-D004154 | Carton Label for ,A190E3-H0F | common | 1 |
| 50 | P-00004045 | 78-D003913 | Cushion,A190E3-H0F,PE_LD,White,530 mmx140 mmx50 mm | common | 1 |
| 51 | P-00004046 | 78-D003911 | Cushion,A190E3-H0F,PE_LD,White,530 mmx140 mmx50 mm | common | 1 |
| 52 | #N/A | 7841935111 | Inner Box,456x290x38mm, A190E1-H01 | common | 1 |
| 53 | P-00004043 | 78-D004088 | Carton,A190E3-H0F | A.C.E.K.W2F | 1 |
| 54 | #N/A | 7841919921 | PE Foam Bag,Protector,570*600*0.13,A190E1-H01,white | common | 1 |
| 55 | #N/A | 7841595111 | Corner Protector | common | 0.083 |
| 56 | #N/A | 7841995111 | Separator,1130x955x11,A190E1-H01 | common | 0.021 |
| 57 | #N/A | 78-D001493 | Pallet,A170E1-H01,Wooden,1150 mmx920 mmx135 mm | common | 0.021 |
| 58 | DC-00004039 | 76-D004095 | MENU for VSC_VA912-3,Paper,1C,A190E3-H0F | C.E.K.W2F | 1 |
| 59 | #N/A | 79-D003912 | Shipping Package Information for ,A190E3-H0F,VSC | common | 1 |

## 8. Exploded Diagram and Exploded Parts List




| ViewSonic Corporation | | |
|---|---|---|
| Model | | |
| Title | | |
| Date | | Rev: |

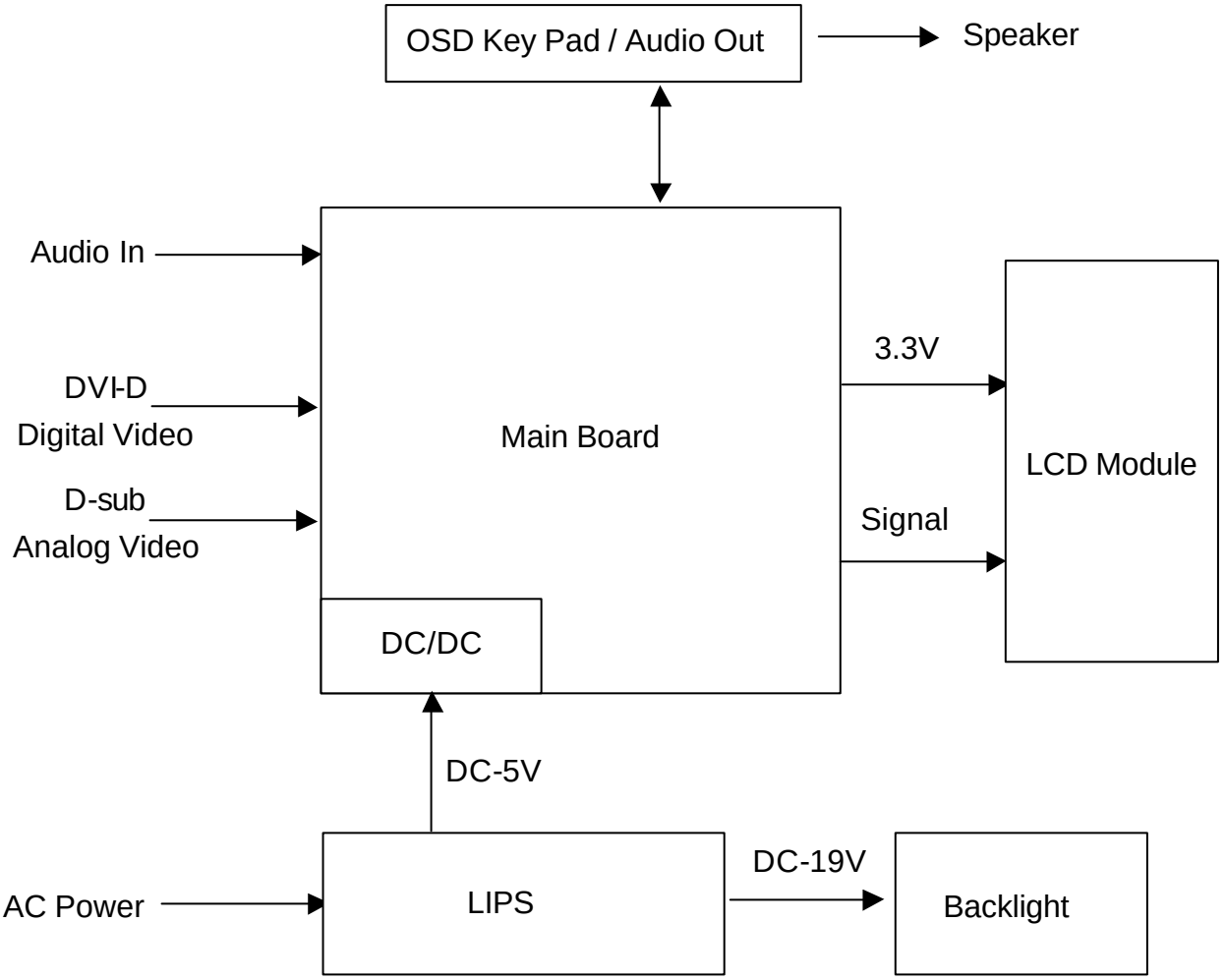
# EXPLODED PARTS LIST (VA912/b-3)

**ViewSonic Model Number: VS10931-1W**

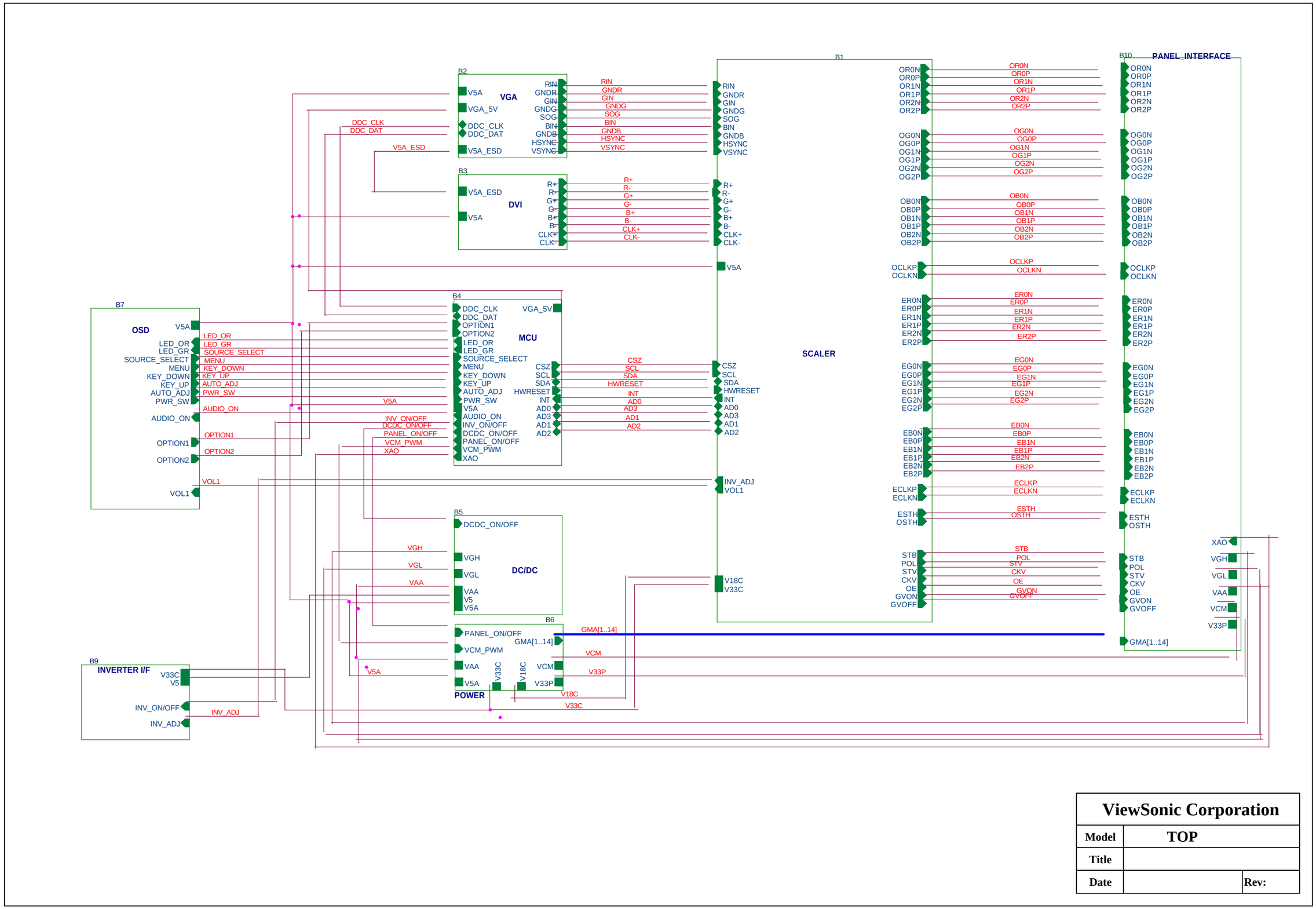
**Rev: 1a**

| Item | ViewSonic P/N | Ref. P/N | Description | Q'ty |
|---|---|---|---|---|
| 1 | #N/A | PJ0EFH0Q06 | ISM_A190E3_HAT | 1 |
| 2 | C-00004025 | 40-D003819 | Bezel Assy,A190E3-H0F,SILVER PANTONE 877 | 1 |
| 2-1 | #N/A | 40-D003809 | BEZEL | 1 |
| 2-2 | #N/A | 40-D003811 | LENS | 1 |
| 2-3 | #N/A | 40-D003805 | KEYPAD | 1 |
| 2-4 | #N/A | 33-D000377 | SPEAKER 4 ohm 2W | 2 |
| 2-5 | #N/A | 42-D001524 | SCREW T2.5*10L | 4 |
| 2-6 | #N/A | 77-D000226 | VSC BIRDLOGO | 1 |
| 2-7 | #N/A | 77-D000224 | VSC NAME PLATE | 1 |
| 3 | #N/A | 73-D004605 | MYLAR PCBX | 1 |
| 4 | #N/A | 73-D005094 | MYLAR LIGHT LEAKAGE | 1 |
| 5 | C-00004028 | 40-D003818 | Rear Assy,A190E3-H0F,BLACK C | 1 |
| 5-1 | #N/A | 40-D003813 | REAR | 1 |
| 5-2 | #N/A | 41-D003804 | SUPPORT PLATE | 1 |
| 5-3 | HW-00000557 | 42A9930017 | SCREW T3*8L | 1 |
| 5-4 | #N/A | 40-D000227 | RUBBER CAP | 4 |
| 6 | HW-00000556 | 42A9990005 | Screw,M3*P1.27*12, | 2 |
| 7 | C-00004032 | 40-D003820 | Stand Assy,A190E3-H0F,BLACK C | 1 |
| 8 | HW-00002442 | 42-D000314 | SCREW,M4,P=0.7 mm,L=15 mm | 4 |
| 9 | C-00004026 | 40-D003812 | COVER HINGE , A190E3-H0F | 1 |
| 10 | C-00004030 | 40-D003821 | Seat Assy,A190E3-H0F,BLACK C | 1 |
| 10-1 | #N/A | 40-D003801 | SEAT | 1 |
| 10-2 | #N/A | 40A1769201 | RUBBER FOOT | 6 |

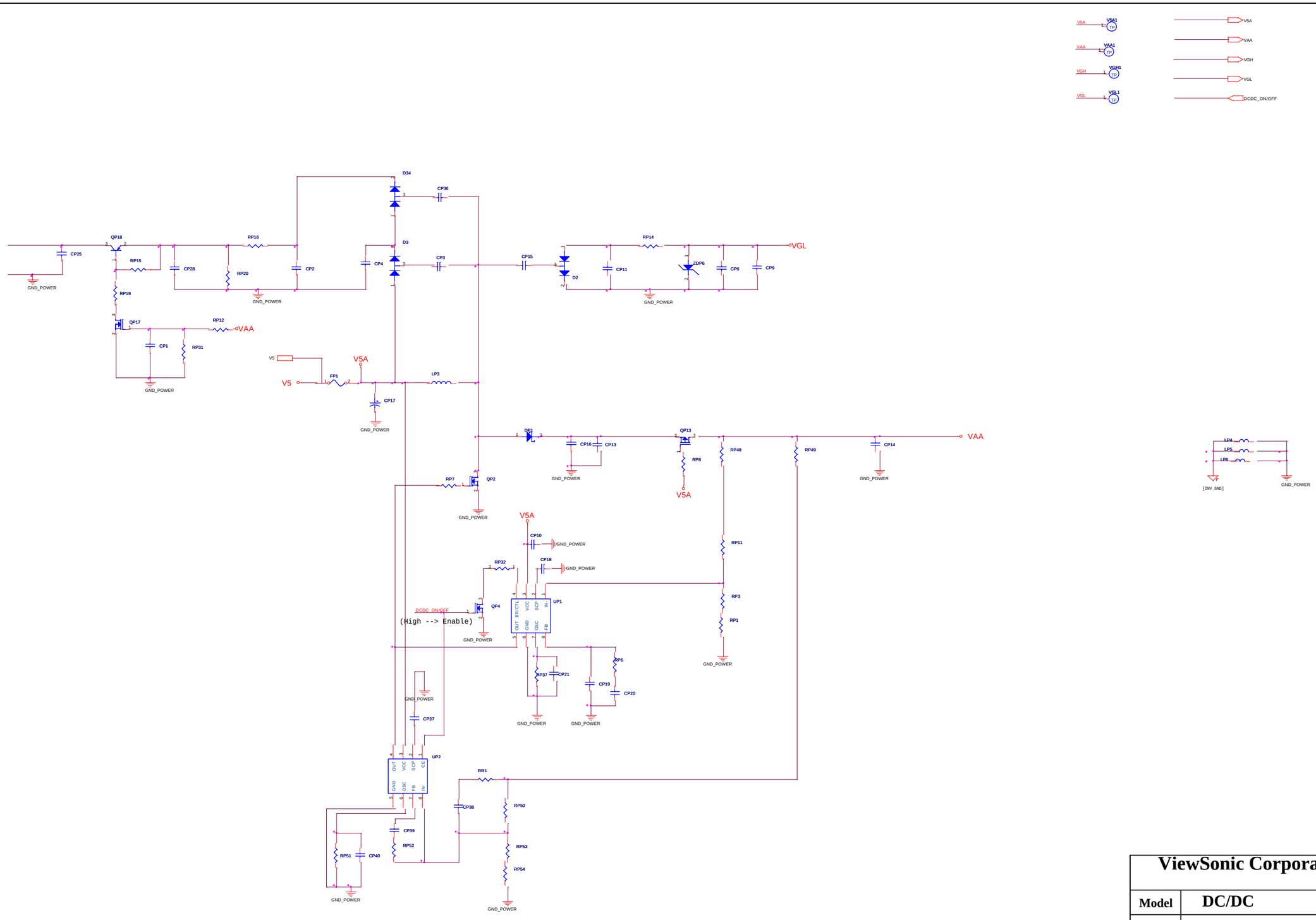
## 9. Block Diagram



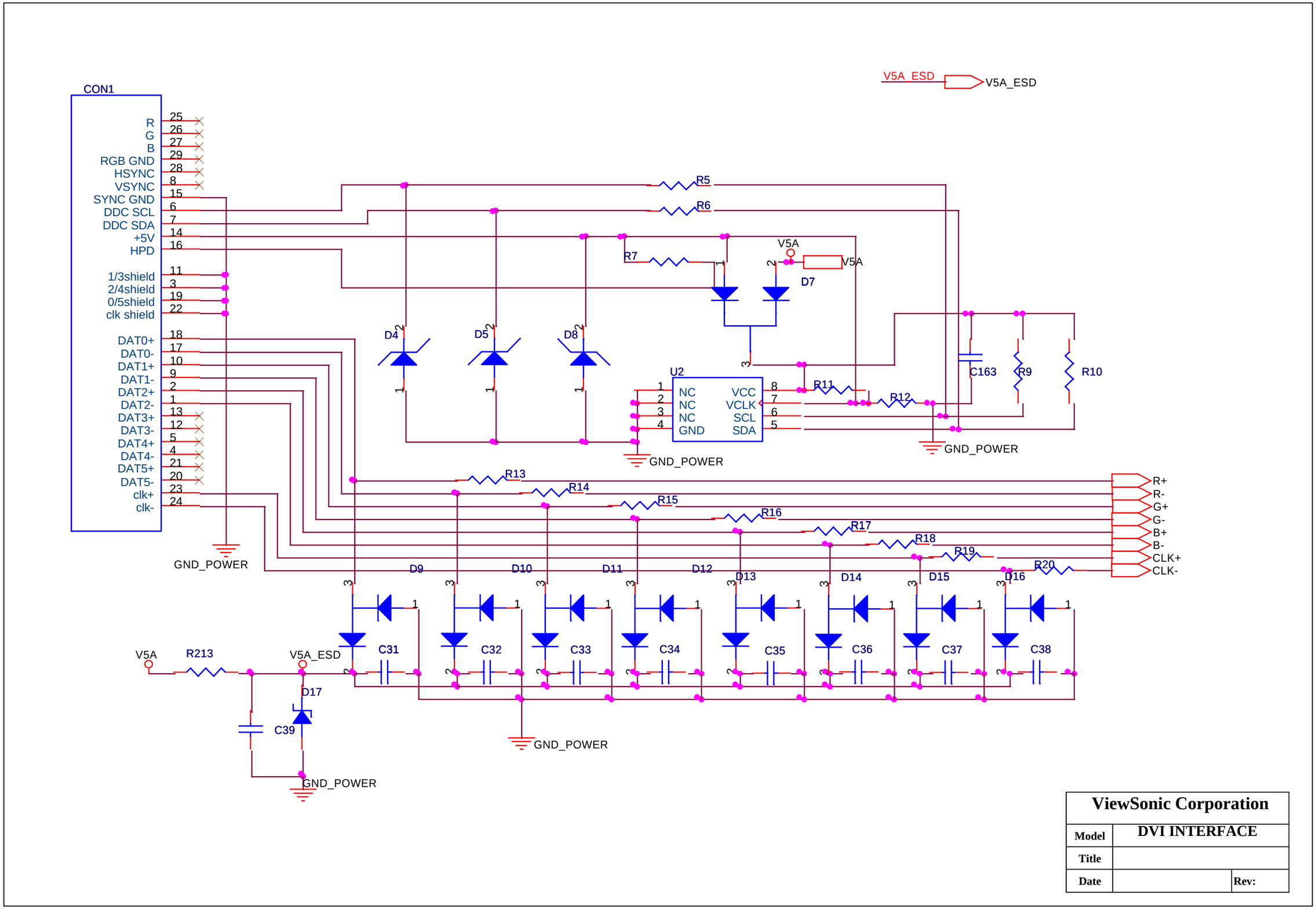
## 10. Schematic Diagrams



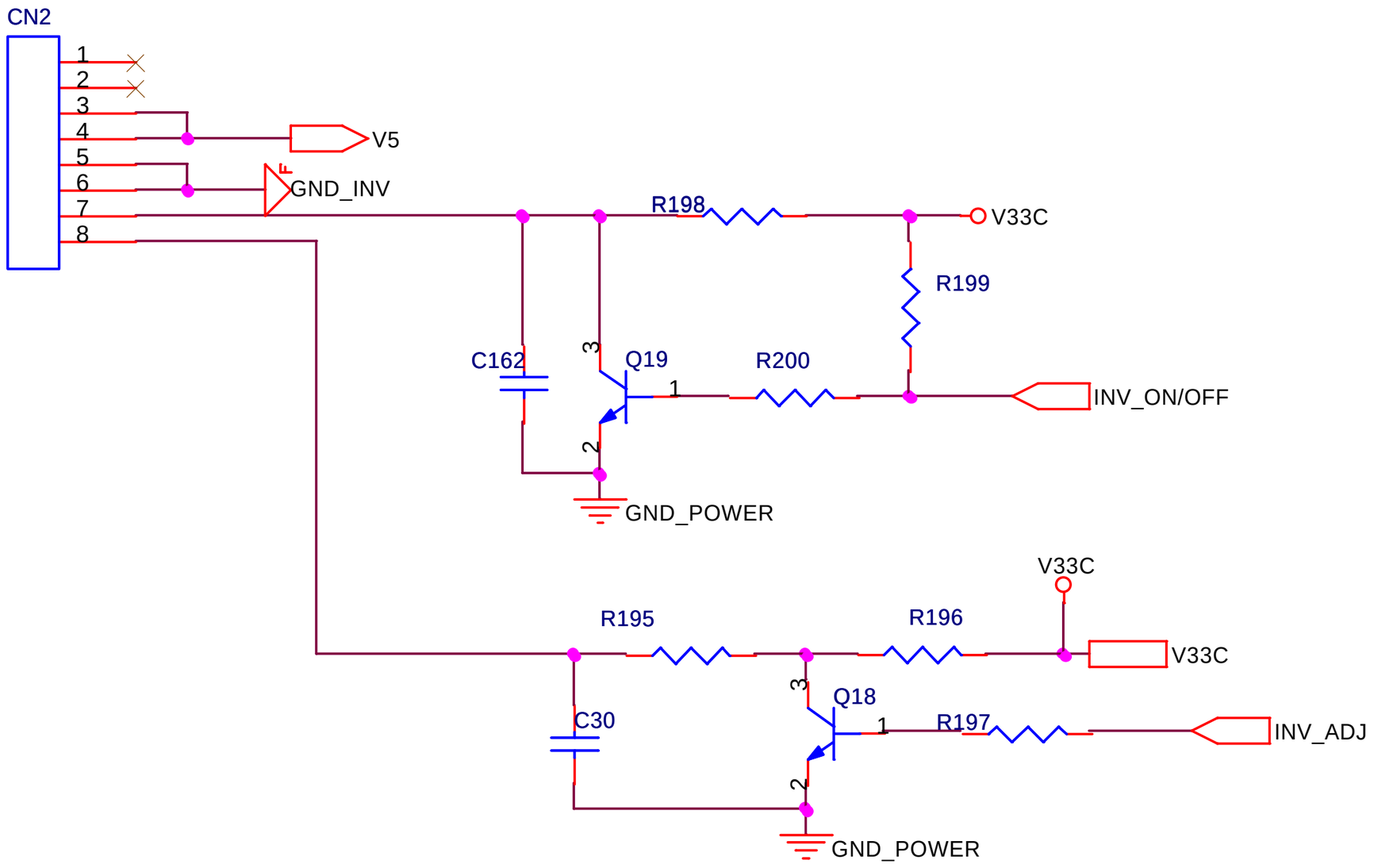

| ViewSonic Corporation | | |
|---|---|---|
| Model | TOP | |
| Title | | |
| Date | | Rev: |



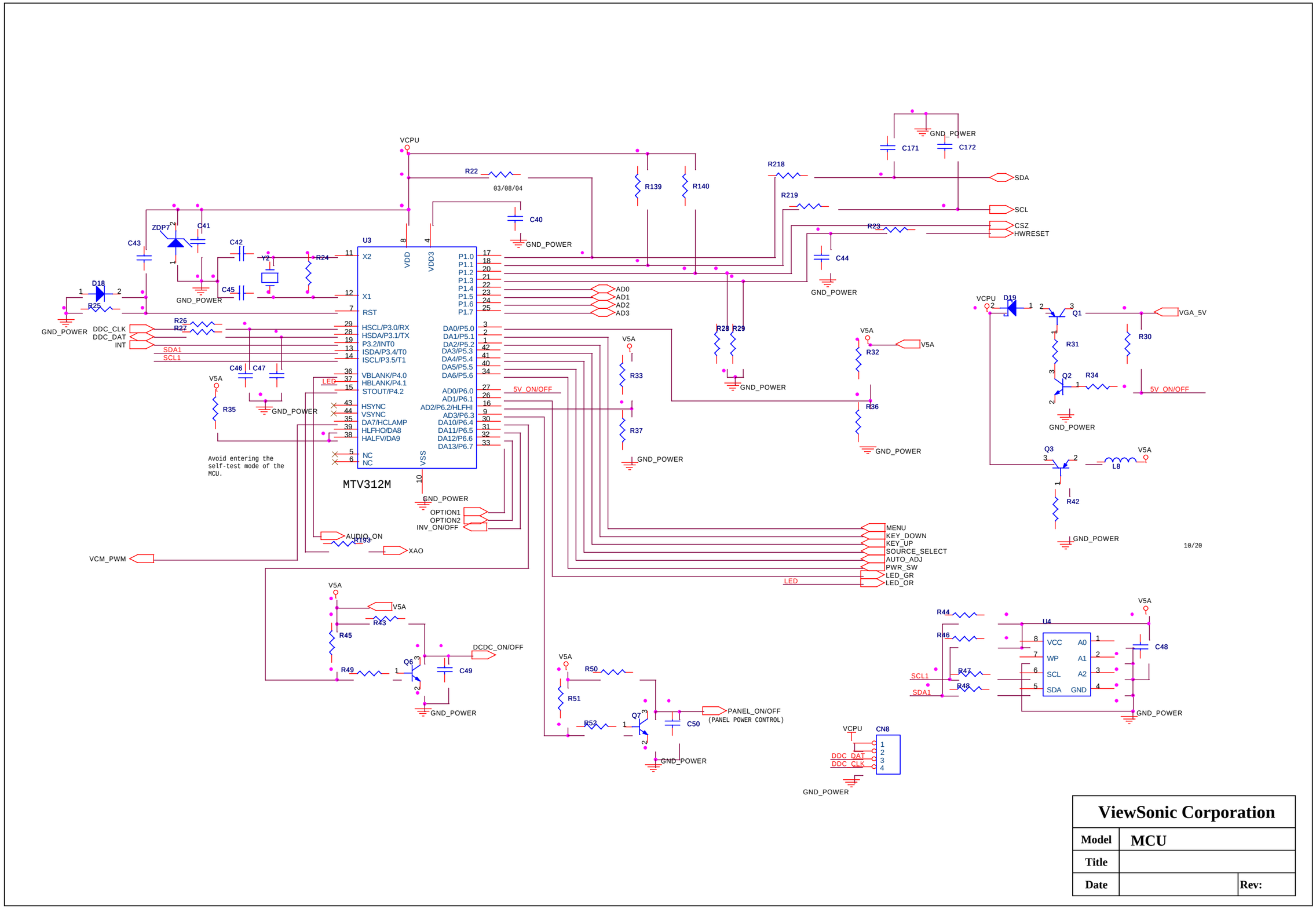

| ViewSonic Corporation | | |
|---|---|---|
| Model | DC/DC | |
| Title | | |
| Date | | Rev: |



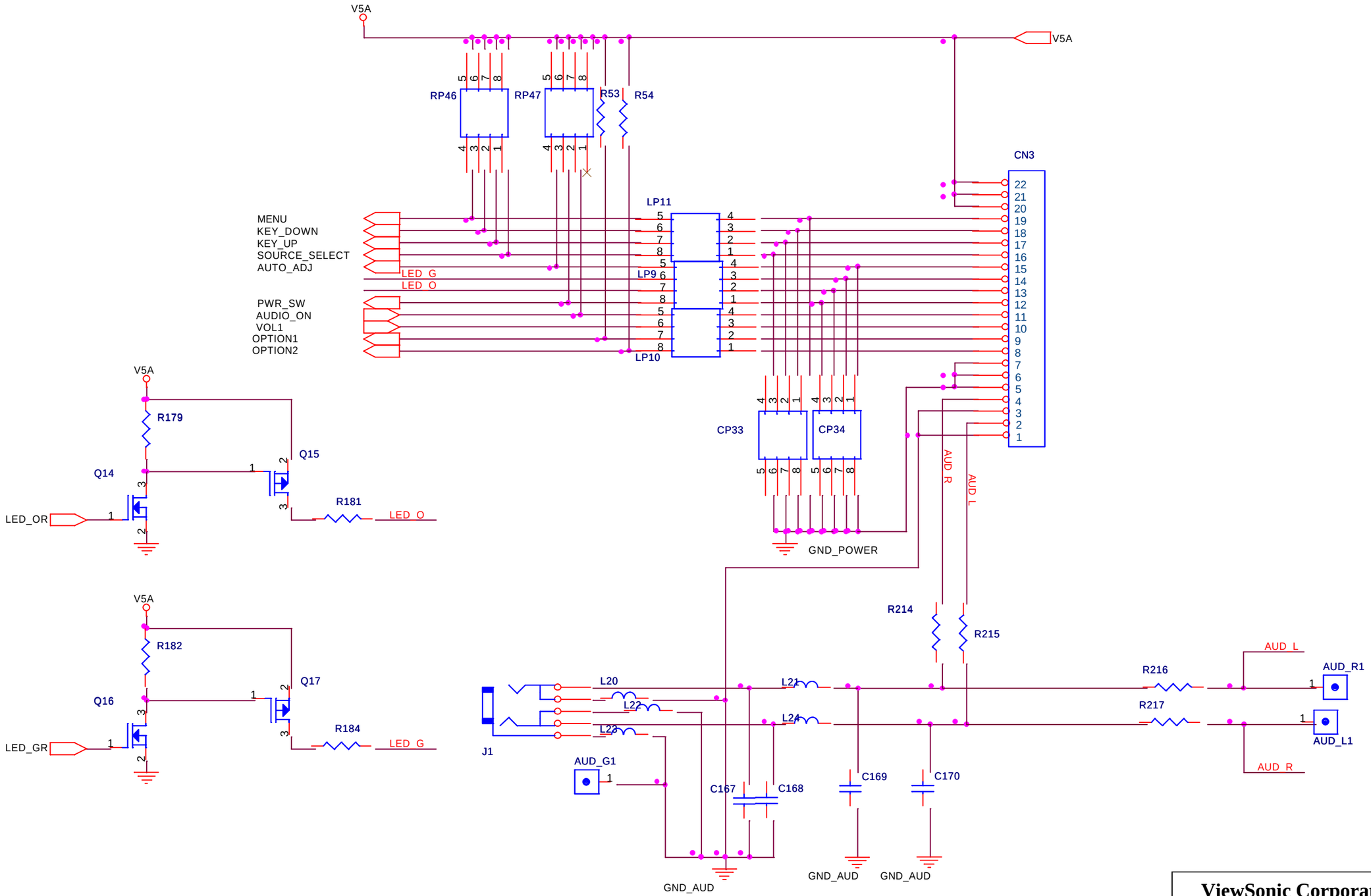

| ViewSonic Corporation | | |
|---|---|---|
| Model | DVI INTERFACE | |
| Title | | |
| Date | | Rev: |



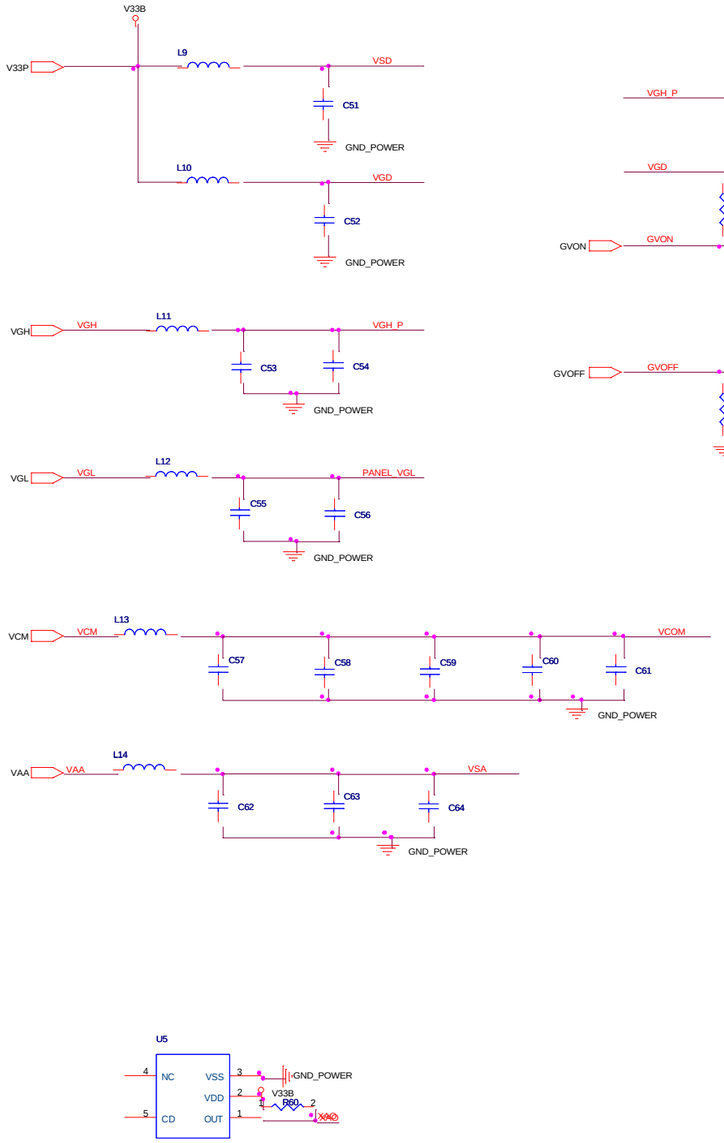

| ViewSonic Corporation | | |
|---|---|---|
| Model | INVERTER I/F | |
| Title | | |
| Date | | Rev: |



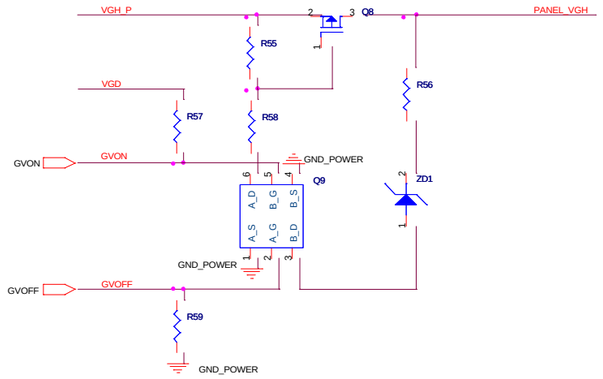

| ViewSonic Corporation | | |
|---|---|---|
| Model | MCU | |
| Title | | |
| Date | | Rev: |

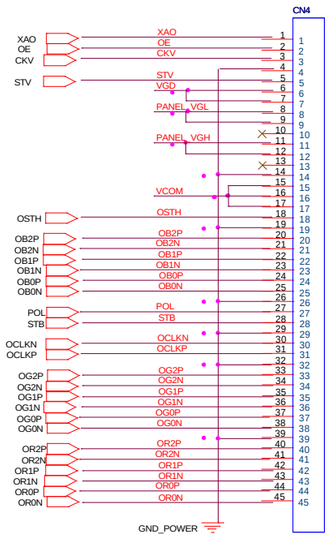


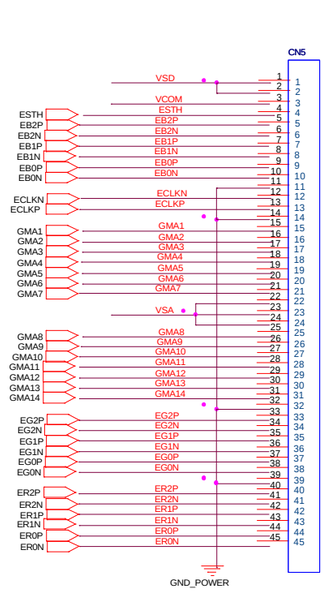

| ViewSonic Corporation | | |
|---|---|---|
| Model | OSD INTERFACE | |
| Title | | |
| Date | | Rev: |

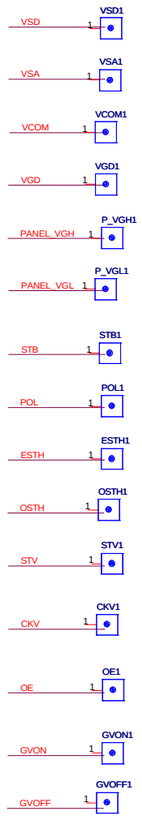



## (3-STEP)

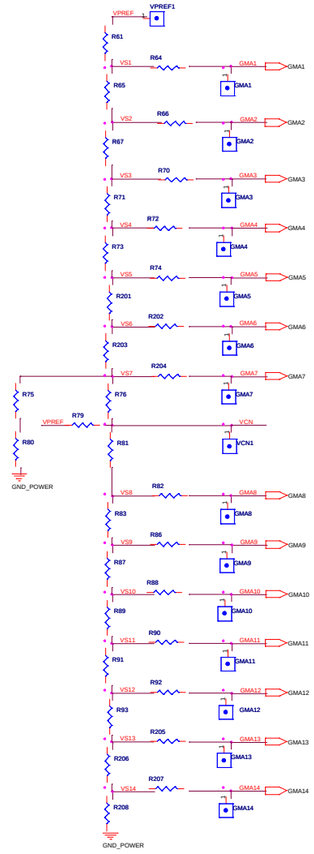


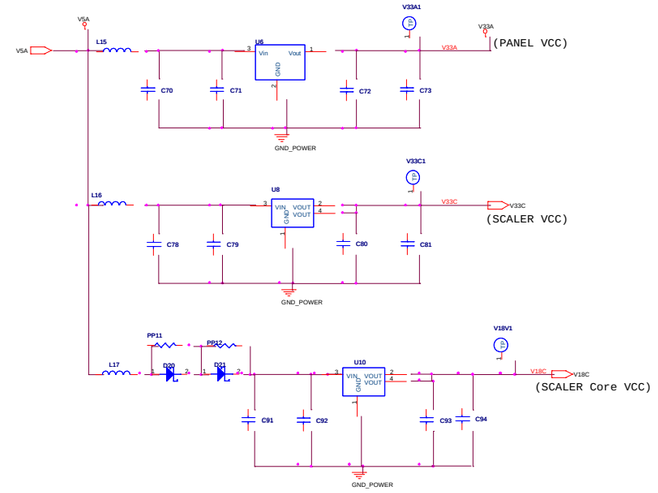



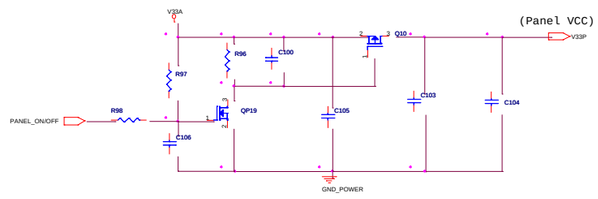



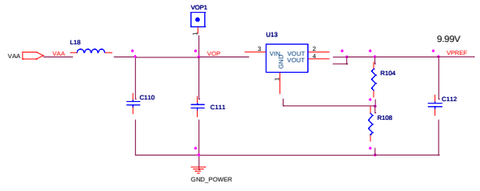



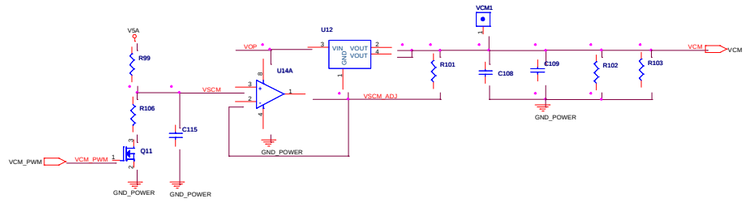

| ViewSonic Corporation | | |
|---|---|---|
| Model | PANEL I/F | |
| Title | | |
| Date | | Rev: |

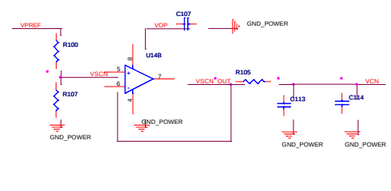


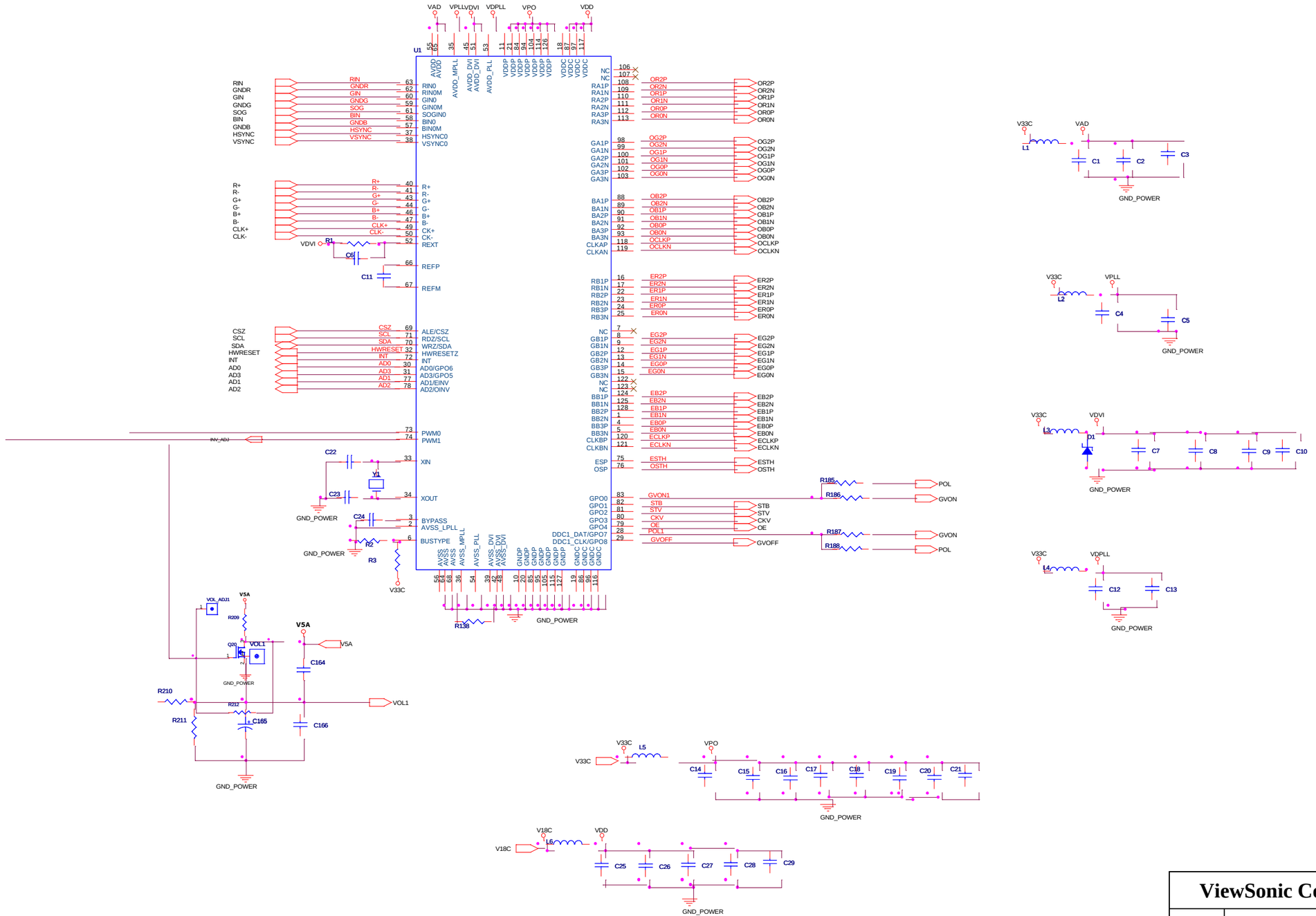



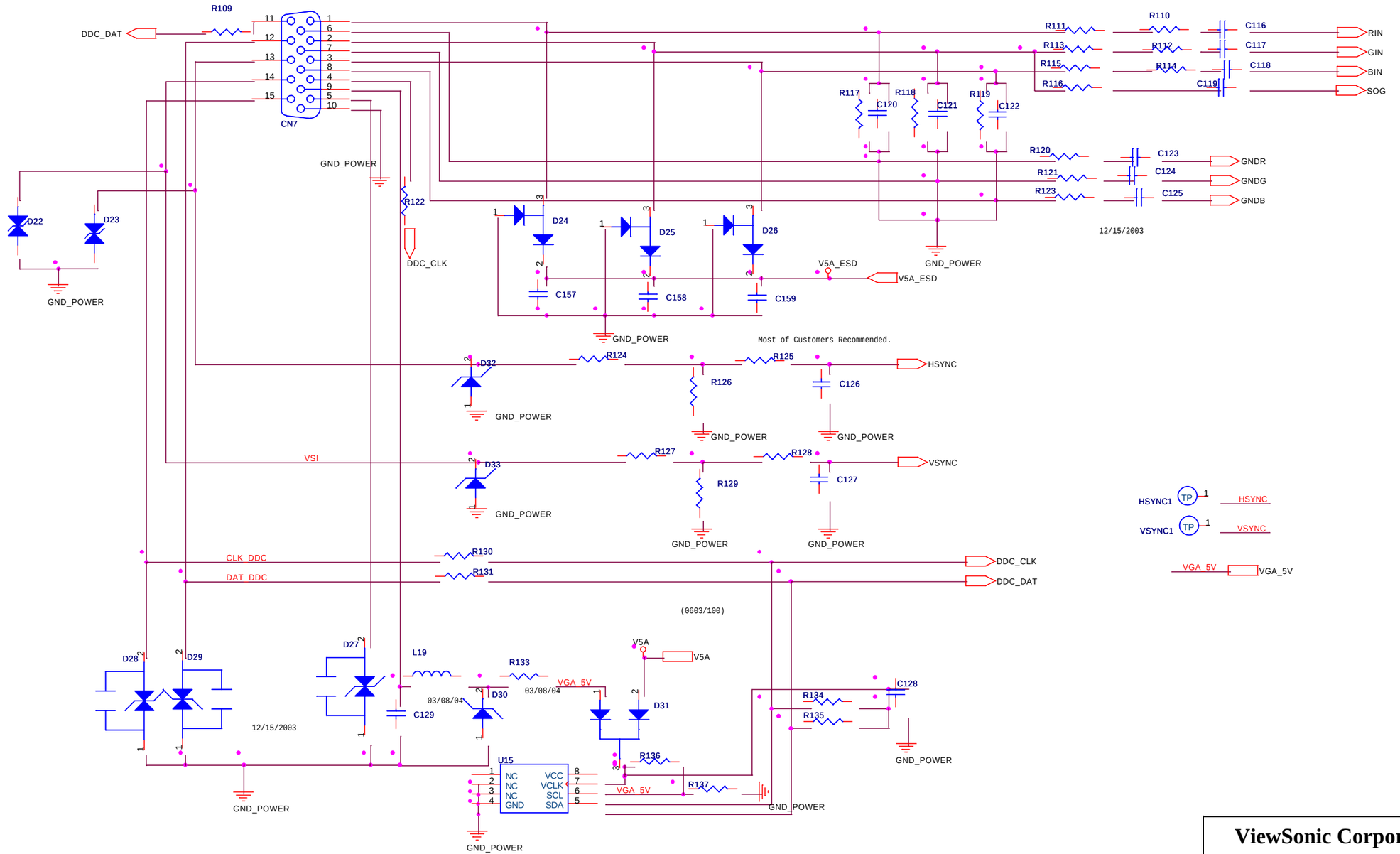




| ViewSonic Corporation | | |
|---|---|---|
| Model | POWER | |
| Title | | |
| Date | | Rev: |

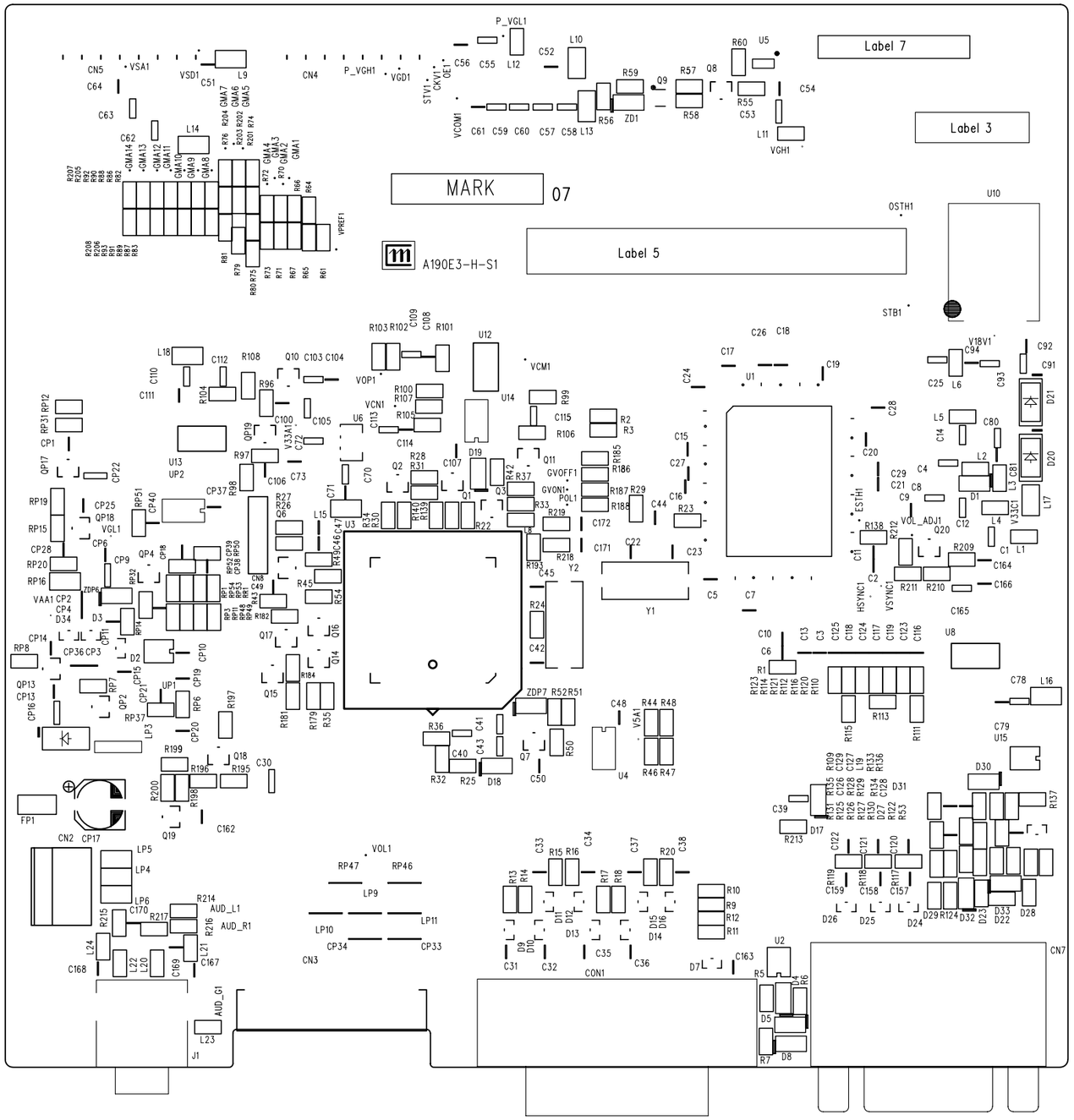



| ViewSonic Corporation | | |
|---|---|---|
| Model | SCALER | |
| Title | | |
| Date | | Rev: |




| ViewSonic Corporation | | |
|---|---|---|
| Model | VGA | |
| Title | | |
| Date | | Rev: |

## 11. PCB Layout Diagrams



# * Reader's Response*

Dear Readers:
Thank you in advance for your feedback on our Service Manual, which allows continuous improvement of our products. We would appreciate your completion of the Assessment Matrix below, for return to ViewSonic Corporation.

***Assessment***

**A.** What do you think about the content of this Service Manual?

| *Unit* | *Excellent* | *Good* | *Fair* | *Bad* |
|---|---|---|---|---|
| **1. Precautions and Safety Notices** | | | | |
| **2. Specification** | | | | |
| **3. Front Panel Function Control Description** | | | | |
| **4. Circuit Description** | | | | |
| **5. Adjustment Procedure** | | | | |
| **6. Troubleshooting Flow Chart** | | | | |
| **7. Recommended Spare Parts List** | | | | |
| **8. Exploded Diagram and Exploded Parts List** | | | | |
| **9. Block Diagrams** | | | | |
| **10. Schematic Diagrams** | | | | |
| **11.PCB Layout Diagrams** | | | | |

**B.** Are you satisfied with this Service Manual?

| *Item* | *Excellent* | *Good* | *Fair* | *Bad* |
|---|---|---|---|---|
| 1. Service Manual Content | | | | |
| 2. Service Manual Layout | | | | |
| 3. The form and listing | | | | |

**C.** Do you have any other opinions or suggestions regarding this service manual?

***Reader's basic dada:***

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| Company: | | | |
| Add: | | | |
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| E-mail: | | | |

**After completing this form, please return it to ViewSonic Quality Assurance in the USA at facsimile 1-909-839-7943. You may also e-mail any suggestions to the Director, Quality Systems & Processes (marc.maupin@viewsonic.com)**